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EC05-839 Livestock Risk Protection Insurance: A Self-Study Guide

Darrell R. Mark

University of Nebraska at Lincoln, dmark2@unl.edu

Allen L. Prosch

Director, Pork Central

Rik R. Smith

University of Nebraska-Lincoln

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Darrell R. Mark, Ph. D.
Extension Livestock
Marketing Specialist

Allen L. Prosch, M.A.
Director, Pork Central

Rik R. Smith, B.S.
Extension Assistant

Livestock Risk Protection Insurance: **A Self-Study Guide**

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Department of Agricultural Economics
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University of Nebraska–Lincoln Extension

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Preface

This self-study guide is designed to provide livestock producers, insurance agents, and educators with information about USDA Risk Management Agency's Livestock Risk Protection program. Livestock Risk Protection insurance (LRP) provides single-peril price risk coverage for future livestock sales and can be used as a risk management tool for livestock producers.

This study guide is presented in five chapters with each chapter broken into several subsections. Also, an appendix containing example forms used in the LRP program is included. The first chapter provides a general overview of LRP and discusses some requirements of the program. Chapter two presents rules and policy provisions of LRP, along with advantages and drawbacks the program may have relative to other hedging strategies. The third chapter explains how the program works including terminology unique to LRP, price reports used to provide price insurance, and calculation of premium costs. Chapter four explores LRP basis and how it differs from futures basis. The chapter also examines how LRP basis is less risky for some LRP users. The final chapter presents an example of using LRP and how to calculate actual sale prices. Several scenarios with varying levels of price and basis are evaluated. A quiz at the end of each chapter can help readers check their understanding of the material from that chapter. Answers for the quizzes can be found at the back of the guide.

Other resources pertaining to LRP insurance are available online at www.lrp.unl.edu. This Web site contains links to USDA LRP resources such as the premium pricing web site and the agent locator. Publications discussing other aspects of LRP in detail, such as LRP basis, are available. Finally, there is a series of video lectures that correspond to the chapters in this study course. The video lecture includes slides along with narration discussing the material presented in this self-study guide. Each video can be downloaded and viewed as a complement to this guide.

Although the chapters are fully integrated and intended to be studied sequentially, they also can be used individually for producers or insurance agents with different information needs.

The information contained in this self-study guide to LRP is based on the 2005 crop year underwriting rules for Livestock Risk Protection insurance. Modifications to the LRP insurance program in subsequent years may change the interpretation and use of some information in this guide. Therefore, users should always check with their insurance agents and USDA RMA underwriting rules for current rules and regulations relating to the use of LRP insurance. Also, updates may be provided online at www.lrp.unl.edu. While the information in this self-study guide is believed to be accurate, no guarantee or warranty is made to its accuracy or completeness.

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Chapter 1

What is Livestock Risk Protection Insurance?

In this chapter, you will learn:

- what Livestock Risk Protection insurance (LRP) is;
- how to enroll;
- what livestock can be insured with LRP;
- where and when LRP is available;
- how to purchase LRP;
- how many head of livestock are insurable under LRP;
- what lengths of insurance coverage are available; and
- how LRP is useful as a risk management tool.

1.1 Introduction

If you were a hog producer in 1998, you likely remember the effects of large price declines on a farming operation. More recently, cattle producers have experienced the potential risk of substantial price decreases as a result of animal diseases. These two situations demonstrate that it is increasingly critical for livestock producers to mitigate price risk. Traditional strategies for protecting price levels have used futures or options hedging or cash contracting. In 2002, USDA Risk Management Agency (RMA) introduced Livestock Risk Protection insurance (LRP) to provide another alternative for protecting price levels for future sales of hogs and cattle.

LRP provides single-peril price risk protection by paying livestock producers if a national cash price index falls below an insured Coverage Price level. Essentially, a Coverage Price is selected by the insured, and if the cash price index is below that Coverage Price at the end of the policy, an indemnity equal to the difference is paid to the insured producer. The program operates much like a put option in that it allows producers to establish a floor price for protection with the ability to participate in price rallies. In return for this protection, the producer pays a premium for the price insurance.

Suppose that LRP had been available during the \$30/cwt to \$40/cwt decline in the 1998 hog market. The price protection could have helped a hog producer during the period of low prices. Assume, for example, a producer had been able to purchase LRP coverage for mid-December 1998 near break-even price levels around \$42.00/cwt at a cost of approximately \$2.00/cwt. When hog prices reached a low of around \$20.00/cwt, the LRP insurance would have paid an

indemnity of approximately \$22.00/cwt (the difference between the Coverage Price and actual price) at a cost of \$2.00/cwt. Many producers could have prevented substantial losses with this type of price protection. (Remember, this is a hypothetical example as LRP was *NOT* available in 1998.)

LRP Coverage Prices and premiums are market based and are determined by futures and options prices. LRP only offers price protection—no other peril is covered including death loss or poor performance. The policy does *not* guarantee a cash price received but rather the right to collect an indemnity based on average cash market prices. As with traditional hedging strategies, basis risk must be considered, but the basis risk when using LRP is different than when hedging with futures contracts. The implications of basis on LRP hedges will be covered in Chapter 4.

1.2 Enrollment

All owners of livestock located in eligible states can apply for an LRP policy with a certified crop insurance agent. The USDA Web site (www3.rma.usda.gov/apps/agents/) provides an Agent Locator Tool that lists agents who sell LRP in certain areas.

To enroll, a producer contacts a certified agent and completes an application. The application asks for general information such as address, phone number, social security number, and type of livestock to be insured. The agent then submits all information to RMA's online electronic database system. After USDA approves the policy, the agent is notified and in turn, reports the acceptance back to the producer. Enrollment in the program by obtaining a policy establishes the right, *but not the obligation*, to purchase coverage. Enrollment alone incurs no cost to the applicant. The actual price insurance coverage is obtained with a Specific Coverage Endorsement (SCE), which can be thought of as an addition to the basic policy that binds coverage.

Coverage cannot be purchased without completing the proper application process, which can take from a few minutes to a couple days. So, producers planning to cover livestock prices using LRP would benefit by enrolling in advance. Once enrolled, obtaining coverage is a relatively quick, simple process. The day that a producer decides to purchase coverage is generally *not* the day to begin the enrollment process in the program. An example of the enrollment application can be found in Appendix 1.

1.3 Qualifying Livestock

One important consideration is to determine the eligibility of livestock under LRP provisions. Essentially, producers must expect the livestock they insure to have certain weight and quality specifications at the time the livestock are marketed (and insurance coverage ends). It is important to note that the livestock are *expected* to meet certain quality and weight requirements. However, if the livestock do not meet those expectations, LRP coverage is not affected nor is the right to an indemnification. These specifications are fairly broad and include most market livestock.

For the swine program, producers must expect the insured market hogs (barrows and gilts) to weigh 150 to 225 pounds on a dressed weight basis. Fed cattle that are insurable include both steers and heifers that will grade Select or higher, Yield Grades 1-3, weighing 1,000-1,400 pounds (live weight basis). Covered feeder cattle are divided into two weight classes—less than 600 pounds and 600 to 900 pounds. Steers, heifers, and Brahman and dairy breeds in both weight classes can be insured. Also, bull calves of any breed expected to weigh less than 600 pounds can be insured.

1.4 Eligible States

The livestock insured with an SCE must be located in an eligible state. The 2005 pilot program included 19 states¹: Colorado, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, Nevada, North Dakota, Ohio, Oklahoma, South Dakota, Texas, Utah, West Virginia, Wisconsin, and Wyoming. Coverage of swine, feeder cattle, and fed cattle is available in all 19 states. It is not necessary for the owners of the livestock to reside in the eligible state—only the insured livestock must be located there. For example, a feedyard in Nebraska may custom feed cattle owned by a person living in Montana. Even though Montana is not an eligible state, the owner could apply for and purchase LRP coverage because the cattle are in Nebraska.

1.5 Substantial Beneficial Interest

To be eligible for LRP insurance, an applicant must have a substantial beneficial interest (SBI) of at least 10 percent ownership in the livestock. SBI is tracked in the LRP program because there are limits to the number of livestock any one producer can insure. If the applicant has a spouse, the spouse is typically considered to have substantial beneficial interest in the applicant's livestock unless specific conditions as outlined by Federal Crop Insurance Corporation (FCIC)

¹ The LRP program is expected to expand to include other states.

procedures and provisions can be proven. To be considered individual farming entities, spouses must prove separate ownership of land as well as separate capital, accounting of equipment and/or labor costs, management, and records maintained, and that neither spouse receives a benefit from the other's farming operation. The spouse of an applicant is generally considered to have an SBI in the livestock to prevent a single household from insuring double the maximum number of head for a given crop year. An example of the SBI form is located in Appendix 2.

SBI is particularly important when the insured entity is a corporation or some group other than a sole proprietor. When that is the case, all individuals with at least 10 percent interest in the insured entity must be included on the SBI form filed with the entity's insurance agent. Because the purpose of delineating SBI is that no individual can insure more livestock than the maximum allowed per insurance crop year (July 1 to June 30; see *Table 1.1*, Section 1.7), individuals must count their share of livestock owned by other entities in which they hold SBI. For example, Joe Farmer has a 75 percent interest in JF Farms, Inc. JF Farms owns 1,000 head of fed cattle insured under LRP. Joe Farmer also has 1,000 head of fed cattle insured as a sole proprietor. Therefore, Joe Farmer has a total of 1,750 head of fed cattle covered with LRP insurance (750 from his interest in JF Farms, Inc. and 1,000 head as a sole proprietor).

If livestock are owned by more than one person or entity, it is not required that all owners insure their share of the livestock. An owner can purchase LRP for his or her share of the livestock independently of the decisions of any other owners. For example, Freddy Farmer jointly owns 1,000 head of fed cattle with his sister Renee Rancher; each owning 50 percent of the cattle. Freddy and Renee can each choose independently to insure their share of the livestock.

1.6 Purchasing Coverage

Once enrolled in the program, coverage for livestock can be obtained any time a producer chooses (during hours of program availability). Again, it is important to note that enrolling in the program costs nothing. No costs are incurred and no price protection is obtained until the coverage is bound with an SCE. Coverage is available for purchase from approximately 5:00 p.m. until 9:00 a.m. (Central Time) the following day, Monday through Friday. The coverage levels and premium rates posted each afternoon are based on the daily futures and options market prices and, once set, are fixed for the remainder of the day (until 9:00 Central Time the next morning). The process of pricing the insurance on the daily market and not allowing

coverage to be purchased while markets are trading reduces the opportunity for adverse selection. LRP premiums will be discussed in Section 3.6.

1.7 Contract Size

The SCEs provide some flexibility to producers. There is no maximum number of SCEs a producer can have at any time so long as the total number of livestock does not exceed the annual limit. There are maximums on the number of head that can be covered under LRP and also on one SCE (*Table 1.1*).

Table 1.1 LRP Coverage Limits

| | <i>Swine</i> | <i>Fed Cattle</i> | <i>Feeder Cattle</i> |
|-----------------------------------|--------------|-------------------|----------------------|
| Per Specific Coverage Endorsement | 10,000 | 2,000 | 1,000 |
| Per Crop Year July 1-June 30 | 32,000 | 4,000 | 2,000 |

There is, however, no lower limit to the number of livestock that can be covered per SCE. An SCE can cover any number of head whether it is 50, 20 or even as few as 1. This feature makes LRP useful to producers with smaller herds who may not have enough livestock to effectively use futures and option contracts to hedge price risk. For example, one feeder cattle futures contract from the Chicago Mercantile Exchange covers 50,000 pounds. A contract of this size represents about 67 head of feeder cattle weighing 750 pounds each. Some producers simply do not have that many cattle or do not want to hedge this portion of their production with one strategy or at one time. With LRP, if a favorable premium is available but a producer only wants to insure a portion of their livestock, that producer can choose to do that. The same principle is true for fed cattle and swine—each 40,000 pound contract represents about 33 head of fed cattle at 1,200 pounds or 216 head of market hogs at 250 pounds on a live weight basis.

Additionally, the CME feeder cattle futures contract represents 700 to 849 pounds, medium and medium/large #1 steers. Hedging feeder cattle that do not meet those standards involves a cross hedge that can create additional risk (the price differential between cattle represented by the feeder cattle futures contract and other types of cattle). LRP uses a price adjustment factor for feeder cattle to more accurately reflect the value of other types of cattle that can be covered. These price adjustment factors will be discussed in Section 3.5.

1.8 Endorsement Length

LRP provides some flexibility in the length of coverage offered. There are several alternative lengths of coverage available that producers may select to correspond to the marketing date of the livestock. To determine the proper endorsement length, calculate how long it will be before the livestock are market ready. Then, select an endorsement length with an end date as close to the market date as possible. The LRP pricing page lists the actual ending dates for each endorsement length. The Web site will be discussed in Section 3.3. Endorsement lengths for the different LRP products are shown in *Table 1.2*.

Table 1.2 Endorsement Lengths.

| <i>Months</i> | <i>Weeks</i> | <i>Days</i> | <i>LRP</i> | | |
|---------------|--------------|-------------|-------------------|----------------------|--------------|
| | | | <i>Fed Cattle</i> | <i>Feeder Cattle</i> | <i>Swine</i> |
| 3 | 13 | 91 | ✓ | ✓ | ✓ |
| 4 | 17 | 119 | ✓ | ✓ | ✓ |
| 5 | 21 | 147 | ✓ | ✓ | ✓ |
| 6 | 26 | 182 | ✓ | ✓ | ✓ |
| 7 | 30 | 210 | ✓ | ✓ | |
| 8 | 34 | 238 | ✓ | ✓ | |
| 9 | 39 | 273 | ✓ | ✓ | |
| 10 | 43 | 301 | ✓ | ✓ | |
| 11 | 47 | 329 | ✓ | ✓ | |
| 12 | 52 | 364 | ✓ | ✓ | |

Policy provisions allow some flexibility as to when the livestock are marketed relative to the end date of the coverage. The livestock can be sold up to 30 days before the end date and any time after the end date; however, selling the covered livestock before the coverage's end date creates some risk that will be addressed in Section 2.3.

1.9 Risk Protection

LRP is a risk management tool—it is not designed to be a price capture mechanism or profit enhancer. Generally, LRP will not help a producer make an extra \$0.25/cwt. The program is more useful in preventing large, potentially devastating losses to an operation in the event of large price declines. A good strategy may be to view LRP insurance premiums like crop

insurance premiums. In calculating the break-even cost of crop production, farmers typically consider crop insurance premiums as another cost of production. In much the same way, premiums for LRP may be incorporated as part of the break-even price for livestock. The producer can then select a coverage level near that break-even production cost. With this strategy, a producer can still participate in price rallies while hedging against prices below the break-even that would result in losses.

An important factor when considering a purchase of LRP is the time to buy coverage. Premiums for a given level of price protection are generally less expensive when prices are high and/or increasing. In this situation, it is less likely that the coverage level will pay an indemnity; therefore, insurance coverage will be less expensive. This situation may offer an opportunity to lock in a floor price near break-even prices for a relatively inexpensive premium. Conversely, if prices are low and/or declining, premiums

may be more expensive for the same level of coverage. As prices drop, it is more likely that a Coverage Price level will result in payment of an indemnity; therefore, coverage becomes more expensive. Often, waiting until market prices decline (and the insurance is needed more) may not be the best time to begin buying LRP coverage. Rather, periods of higher prices may be the best opportunity to protect a break-even cost of production or a profit for a relatively inexpensive premium.

1.10 Summary

This chapter covered what LRP is, how to enroll, which livestock can be covered under LRP, and in which states LRP is available. It also explained how to obtain coverage, what SCEs are, and what lengths of coverage are available for LRP. The chapter concluded with a discussion of why LRP can be a good risk management tool.

Check for Understanding: Chapter 1

| | | | |
|-----|---|---|---|
| 1. | T | F | Feeder heifers are not eligible for LRP insurance. |
| 2. | T | F | Livestock owners do not have to live in an LRP eligible state to insure livestock as long as the livestock are located in an eligible state. |
| 3. | T | F | For partnerships or corporations insuring livestock with LRP, individuals with at least 10 percent ownership interest in the partnership or corporation must be listed on the SBI form. |
| 4. | T | F | LRP insurance can be purchased during regular business hours (8-5, M-F). |
| 5. | T | F | A specific coverage endorsement (SCE) must cover at least 10 head of hogs or cattle. |
| 6. | T | F | The minimum number of livestock insurable under LRP is more flexible than hedging with futures or options contracts. |
| 7. | T | F | LRP insurance has endorsement lengths available up to 26 weeks for swine and up to 52 weeks for feeder and fed cattle. |
| 8. | T | F | Insured livestock cannot be sold before the expiration of coverage without voiding the insurance coverage. |
| 9. | T | F | LRP insurance is a good tool for enhancing profits and capturing higher prices. |
| 10. | T | F | When price levels are high, cost-of-production or break-even prices often can be insured with relatively inexpensive LRP premiums. |

Chapter 2

Additional Policy Provisions—LRP Advantages and Disadvantages

In this chapter, you will learn:

- specific perils protected by LRP insurance;
- livestock ownership requirements of LRP;
- how LRP provides flexibility and guaranteed premium pricing to users;
- how to transfer coverage or assign an indemnity;
- why offsetting transactions and lifting hedges are not allowed when using LRP; and
- how LRP can reduce basis risk.

2.1 Introduction

Livestock Risk Protection (LRP) insurance is a relatively simple program in comparison to some hedging strategies, and Chapter 1 provided a basic description of how the program insures livestock selling prices for producers. Basic program provisions such as the states where LRP is available, which livestock qualify, how to enroll in the program, how to purchase coverage, and annual insurable limits were covered in the opening chapter. Also, the first chapter discussed how LRP can be used as a risk management tool. A producer may wonder, “If LRP operates like a put option (as described in Section 1.1), is it better to use one than the other?” Chapter 2 focuses on some rules and policy provisions of LRP and addresses how some rules may be advantageous or disadvantageous to producers.

2.2 Single-Peril Coverage

Recall from Chapter 1 that LRP provides price protection for insured livestock by establishing a floor price for the insured livestock. The insurance pays an indemnity if a national cash price index falls below the insured price level at the end of the coverage period. LRP is single-peril insurance in that it only provides protection against price declines. No other type of loss is covered by LRP, including mortality, condemnation, physical damage, disease, individual marketing decisions, local price aberrations (basis changes), or poor animal performance. For example, if livestock do not gain as well as the producer had expected, the lost production is not insured. Assume a cattle feeder plans to sell 1,300 pound steers when enrolling in LRP but the steers only weigh 1,200 pounds when sold. The *total* value of lost production (insured price level multiplied by 100 pounds) is not insured; however, any indemnity paid (the difference between Coverage Price and the national cash index at the end of cover-

age) will be calculated based on the originally insured 1,300 pound steers (the amount originally insured and listed on the Specific Coverage Endorsement or SCE). Also, because mortality is not insured, the value of any livestock that die is not indemnified by the LRP policy. If a hog producer has 500 head of market hogs insured with LRP and 10 die, the *total* value of the dead hogs is not insured (insured price multiplied by the number of dead hogs). However, if the owner reports the death of the insured hogs to the LRP insurance agent within 72 hours, these dead hogs are still eligible for an indemnity if one would be paid based on market conditions (the indemnity would be paid for the total number of head insured). Some producers might consider factoring in death loss when purchasing coverage. Assume Joe Farmer has 100 hogs to insure and knows he generally has a 2 percent death loss; he might decide to purchase coverage for only 98 head.

The potential problem with factoring in death loss when purchasing coverage like this is that the policy holder must keep close track of how many animals died. If Joe has more than two hogs die, he needs to report the additional deaths to prevent voiding coverage on the dead animals. If Joe forgets to report additional deaths, the amount insured on the SCE will be reduced by the number of deceased head with no refund of premiums. However, if he insured all 100 head and reported any deaths that occur, he does not have to worry about which hogs need to be reported and which do not. By reporting all mortality, Joe has established a good habit to consistently report the death of covered animals, and he does not have to count how many hogs die before he must start reporting.

The LRP policy does not prevent a policy holder from obtaining separate coverage for any other peril such as lightning, drowning, or full mortality. In order to protect against any of these losses, producers must obtain a separate property and casualty insurance policy.

2.3 Livestock Ownership

As Section 1.5 discussed, an applicant for LRP insurance must have Substantial Beneficial Interest (SBI) in the insured livestock. The insurance company, any person designated by the company, or any person designated by a USDA agency may request proof of ownership of insured livestock at any time up to three years after the end of coverage. Ownership can be

verified by the purchase receipts from prior owners, financing documents from a lender that financed the livestock purchase, or a bill of sale when the insured livestock are sold. Alternatively, third-party statements may be used to verify ownership. For example, if a veterinarian or feed supplier is familiar with the operation, has visually inspected the insured livestock, and can attest to the insured's ownership, that veterinarian or feed supplier can provide a written statement stating the time and number of livestock owned by the producer.

Another issue to consider when discussing ownership is the cash sale date of the livestock. The LRP coverage has a specific ending date (see Sections 1.8 and 3.2) when the indemnity is determined. The insured party must maintain ownership until at least 30 days prior to that ending date. If the livestock are sold more than 30 days before the end date, the insurance coverage is void and premiums are not refunded.

It may be difficult for a producer to time selling the covered livestock with the expiration of the insurance. There may be production issues, such as the livestock gaining weight faster or slower than expected. This may be more of an issue for feeder cattle and fed cattle than for swine. However, livestock can be sold any time after 30 days before the end date or any time after the end date without voiding coverage. By allowing this marketing window of 30 days prior to the end date designated on the SCE, producers are provided some flexibility to address individual marketing and/or production needs. Although it may be favorable or even necessary to sell livestock prior to the LRP coverage end date (but still in the allowed 30-day window), doing so creates some price risk (Figure 2.1). If prices are below coverage levels at the time of the cash sale, the producer will receive a lower cash price. Then, if prices rise between the cash sale and the ending date of coverage, the producer will not receive as large an indemnity or may receive no indemnity at all. Essentially, the producer is losing the price protection provided through paying the premium.

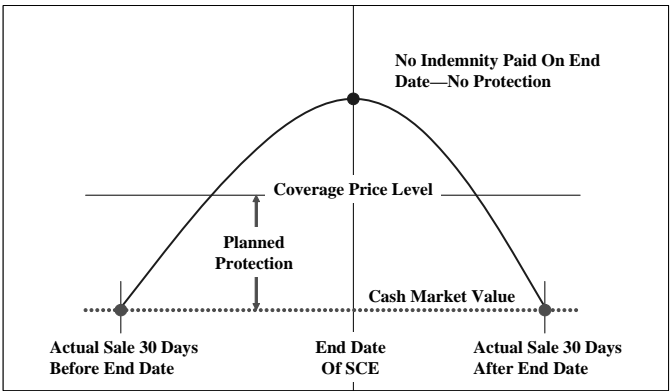


Figure 2.1

One factor to consider when determining when to sell livestock is the potential for future price movement. In other words, if a producer delays selling cattle (particularly after the end of coverage is reached), what is the chance prices will go up or down? To assess this situation, consider the change in price relative to some point in time before that point. Table 2.1 below shows the average 30-day change in price for swine, fed cattle, and feeder cattle as well as the largest increase and decrease for each.

Table 2.1 30-Day Price Change (2001-2004).

| | Average (\$/cwt) | Largest Decrease (\$/cwt) | Largest Increase (\$/cwt) |
|------------------------------|---------------------|---------------------------------|---------------------------------|
| Swine (CME Index) | -0.19 | 19.10 | 12.64 |
| Fed Cattle (5-Area Price) | 0.22 | 25.56 | 18.57 |
| Feeder Cattle (CME Index) | -0.05 | 15.26 | 6.72 |

The data indicate that, on average, there is little incentive to delay selling livestock for 30 days. Only fed cattle have a higher average price relative to 30 days before at \$0.22/cwt higher, while swine and feeder cattle had lower average prices relative to 30 days before. However, there is significant risk of large decreases, up to \$25.56/cwt for fed cattle, \$19.10/cwt for swine, and \$15.26/cwt for feeder cattle. There is also potential for large price increases as well, but in the long run the increases and decreases essentially average close to zero. This means there would be a big risk for what is, on average, a small return if trying to optimally time livestock sales dates and LRP end dates.

2.4 Guaranteed Pricing

One important distinction between LRP insurance and futures options contracts is how prices are determined for each. Futures and options prices are negotiated by the market whereas LRP premiums are set by RMA. Generally speaking, the options market has a relatively low volume of trades, particularly for deferred months (those contracts several months in the future). When buying a put option, it is unlikely that a producer will necessarily be able to buy at the price most recently traded, but rather may have to “move the market” to fill his/her order. The reason for this difference is that a bid/ask spread exists in the options

market because prices are negotiated by buyers and sellers. The bid/ask spread refers to the difference between the bid price (how much buyers are offering to pay) and asking price (how much sellers want in order to sell). Because the options market may be lightly traded, buying an option may require the buyer to bid higher than the current market price to get the order filled and buy the contract. For example, if a given put option is trading at a cost of \$1.00/cwt, a potential buyer may have to bid \$1.05/cwt to find someone willing to sell; the buyer has to bid the price higher to buy the options contract. This means someone wanting to hedge with options contracts might not know exactly how much the price coverage will cost until after the purchase is made (when using a market order).

LRP insurance premiums are established after the futures and options markets close for the day, and, once set, the prices and premiums are guaranteed for that day and will not change. This allows a producer to know precisely what price level will be covered and how much the coverage will cost. Also, because LRP is only available when futures and options markets are *not* trading (5:00 p.m. until 9:00 a.m. Central Time), it provides after-hours price protection. Having guaranteed prices and after-hours availability can benefit producers who are not able to closely monitor markets through the course of a day. They can analyze available prices and premiums and call their insurance agent in the evening (provided the agent is available for after-hours purchases) without the chance of markets moving or prices changing.

2.5 Coverage Transfer and Indemnity Assignment

At times it may be advantageous to be able to grant the right to receive an LRP indemnity payment to another person. LRP provides two alternatives for doing so. One method involves transferring ownership of the insured livestock and LRP insurance policy, while the second involves assigning only the indemnity payment—ownership of the livestock does not change. With the first type, if an insured party transfers ownership of any portion of the covered livestock, the insurance coverage for that portion of the livestock can also be transferred, so long as the new owner is eligible for LRP insurance. To transfer coverage, a Transfer of Right to Indemnity Form must be filed with the current owner's insurance agent and approved by the company before the transfer takes effect. An example of this form is in Appendix 3. A logical question might be whether the livestock being sold are worth more because they are insured. The answer depends on the insured price, current market conditions, and the amount of time left until coverage expires. If the

insured price is substantially higher than current prices and the expiration date is near, the seller may be able to have part of the insurance's expected indemnity bid into a higher price. However, if current prices are higher than the covered price, there may be little added value in the insurance on the cattle.

Assigning the right to collect the indemnity does not involve a change in ownership of the insured livestock and policy. Instead, the owner transfers the right to collect any indemnity payment from the insurance coverage. The insured owner files an Assignment of Indemnity Form with the insurance company, and, once approved, the assignee has all rights to claim any indemnity that may be due. In this case, if any indemnity is due, the party assigned the right to the indemnity (the assignee) must file the proper claim form, not the actual owner of the livestock. Assigning an indemnity payment to another party may be useful if the second party has a collateral interest in the livestock, such as a bank that provided financing. See Appendix 4 for an example of an Assignment of Indemnity Form. Filing a claim for an indemnity will be discussed in Section 3.7. In order for the assignee to collect the indemnity, the livestock owner (who holds the policy) must not violate any policy provisions that might void the coverage (e.g., selling the livestock 31 or more days prior to the expiration of coverage).

2.6 Insurance Policy as a Hedging Instrument

One aspect of LRP that differentiates it from futures or options hedging is LRP's status as an insurance product. Unlike futures or options contracts, LRP is technically not considered a derivative product even though the coverage is similar to that available in the derivatives market (i.e., futures market). USDA provides a subsidy to offset some of the program's costs. One subsidy pays 13 percent of the total premium cost. Also, the insurance companies selling LRP receive an additional subsidy that covers the administrative costs and fees. Therefore, producers purchase LRP without commission or administrative fees; with futures or options hedging, each trade has an associated commission fee.

While the subsidies reduce the financial burden of the program, they are not intended to be a direct payment, so some restrictions on LRP exist. Any person who purchases LRP coverage may not take an offsetting position in the futures or options market that would negate the benefit of LRP protection and recover the subsidy. For example, the LRP coverage holder may not write (sell) a put option or go long in the futures market. This rule is in place to prevent someone insured with LRP from converting the gov-

ernment subsidy into funds available for use by the insured or anyone affiliated with the insured. If someone with LRP coverage does take an offsetting futures or options position as described above, the coverage will be void and the premiums paid for the coverage will not be refunded. However, this rule does not prevent an insured party from trading the underlying futures or options contracts (e.g., selling futures contracts, buying put options, or selling call options).

It is important to note that the insured party cannot sell the LRP coverage back to the insurance company to recover any premiums. This restriction combined with the rule against offsetting futures or options transactions means that LRP coverage cannot be lifted. Once the coverage is purchased, it will remain in place until the expiration date is reached. Offsetting the hedge by taking an opposite position in the futures or options market is not permitted, and the policy cannot be sold back to the insurance company. Essentially this means the only date the coverage has value is on the end date when an indemnity is determined. A bank or other group with collateral interest in the insured may view this restriction favorably. However, some producers may prefer the flexibility provided by futures or options contracts because they can be bought or sold any time the markets are trading. If the hedged livestock are sold earlier than expected, the futures or options hedge can be lifted at that time. Also, a futures hedge can be lifted early if markets have moved such that a profit on the hedging instrument can be captured.

2.7 Basis Risk Coverage

When hedging with futures or options contracts, the difference between a local cash price and the futures market price must be considered when calculating an expected selling price. This difference between cash and futures price is called basis. When using LRP to hedge livestock prices, basis must still be considered;

however, with LRP, futures basis used in traditional hedging is not relevant. The appropriate LRP basis is the difference between the cash price received and the cash price index against which the policy is indemnified. LRP basis risk relative to futures basis risk is generally smaller for Nebraska producers because Nebraska cash market prices are weighted relatively heavily into the cash price indexes. With Nebraska prices included in the indexes, they will more closely reflect prices actually received by Nebraska producers. As a result, basis risk can be substantially reduced when using LRP insurance. This is true primarily for fed cattle and swine but is less applicable to feeder cattle. Basis risk will be explained in detail in Chapter 4.

2.8 Summary

This chapter discussed several policy provisions and underwriting rules that are important in understanding LRP insurance. LRP provides single-peril price risk by insuring only the price level for covered livestock. Ownership verification may be requested at any time by the insurance company, and the insured livestock must be owned up to 30 days prior to the coverage expiration. As a subsidized insurance product, LRP imposes restrictions on offsetting futures or options transactions, and once purchased, the coverage provided by LRP cannot be lifted. Offsetting transactions (selling a put option or buying futures contracts) will void LRP coverage. LRP has guaranteed pricing and provides flexibility to users in terms of the number of livestock covered. LRP coverage and indemnities can be transferred or assigned to another party. Finally, LRP provides a reduction in basis risk. All these factors along with any advantages or disadvantages they give rise to must be considered by producers when determining if LRP is right for their hedging needs.

Check for Understanding: Chapter 2

1. As single-peril insurance, LRP protects against_____.
 - a) mortality
 - b) poor livestock performance
 - c) price decreases
 - d) all of the above
2. T F If an insured animal dies, it will be eligible for indemnification as long as the producer reports the death within 72 hours.
3. T F The full market value of a deceased animal is insured with LRP.
4. T F Only a receipt or bill of sale can be used to verify ownership of insured livestock.
5. T F There is substantial risk involved in keeping livestock past the end date of coverage in hopes of receiving a higher cash market price.
6. Once LRP premiums are established for a given day, they_____.
 - a) can change based on demand for LRP coverage
 - b) cannot change and are available until 9 a.m. the next morning when sales stop
 - c) can change based on news likely to affect markets
 - d) cannot change and are available until 5 p.m. the next day when new prices are posted
7. T F If insured livestock are sold before the end date, coverage can be transferred to the new owner provided the new owner is eligible for LRP.
8. If the right to an indemnity is assigned to someone, for that person to collect the indemnity, the proper claim form must be filed by_____.
 - a) the insurance agent
 - b) the original livestock owner
 - c) no one, indemnities are automatically paid when due
 - d) the assignee
9. T F Offsetting futures or options positions will void LRP coverage.
10. T F LRP insurance can be lifted before the end of coverage to recover some of the premium.

Chapter 3

How Does Livestock Risk Protection Insurance Work?

In this chapter, you will learn:

- definitions of LRP terminology;
- how to access Coverage Prices, premium rates, and ending values from USDA;
- which indexes are used by USDA to determine if an indemnity would be paid;
- how to calculate total LRP premiums; and
- how to collect an indemnity for LRP coverage.

3.1 Introduction

Chapters 1 and 2 discussed the basic provisions of LRP insurance and provided a general overview of the program. The first chapter covered the general requirements of the program such as what livestock are eligible, states where LRP is available, annual insurable limits for LRP, and available endorsement lengths. Chapter 2 discussed other limitations of the program and outlined the advantages and disadvantages of LRP. This chapter covers how to establish insurance protection for livestock. First, it familiarizes readers with important terminology associated with LRP. Then, price reports that are used to evaluate cash price levels to determine if indemnities will be paid are discussed. Next, the chapter covers how to look up endorsement lengths, Coverage Prices, and premium rates. Finally, an example of calculating premiums and indemnities is provided.

3.2 Terminology

To fully understand LRP, it is important to be familiar with the terminology unique to the program. These terms are essential in understanding how to purchase LRP coverage, what levels of protection are available, and how much the price protection will cost. These terms include:

- **Expected Ending Value (EEV)**—The expected national or regional cash index price for a specific commodity at a future date. It depends on expected future price levels and on the endorsement end dates. EEV is the price level that USDA estimates the cash price index will be on the ending date of the LRP contract and is the basis for the LRP insurance coverage level.
- **Coverage Price**—The actual level of price protection covered by LRP ranging from 70 percent to 95 percent of EEV. The Coverage Price is the

selling price insured, or floor price. If the cash market index price (defined below) is lower than the Coverage Price on the insurance end date, an indemnity is paid to make up the difference.

- **Rate**—The price of coverage. The rate is a percentage of the value of insured production, and it is used in calculating the premium cost of the price protection. Rates will be higher for higher coverage levels. USDA adjusts EEV, Coverage Prices, and Rates each day LRP is available.
- **Cost per cwt**—The premium cost of LRP coverage on a per hundred weight basis. Cost per cwt is calculated by multiplying Coverage Price by the Rate for that coverage level. Cost per cwt can be incorporated into break-even price level calculations as discussed in Section 1.9.
- **End Date**—The date the insurance coverage expires. The end date is the day on which an indemnity is determined. This is the only date the insurance coverage has value because the coverage cannot be lifted or offset prior to the end date. End date is found by adding the endorsement length to the effective date (the date coverage is purchased).
- **Actual Ending Value (AEV)**—The cash index price on the end date of coverage. These values are reported by USDA after the end date is reached. The AEV is compared to the Coverage Price to determine if an indemnity is due. The indexes used to determine AEV are discussed in Section 3.4. Feeder cattle, fed cattle, and swine each use a different index to determine AEV.
- **Indemnity**—The amount paid by the insurance policy if AEV is less than the Coverage Price. The indemnity is calculated by subtracting AEV from the Coverage Price.

To summarize, coverage is purchased by selecting the endorsement length with an end date closest to the projected marketing date of the livestock. EEV is the USDA-RMA expectation of national cash price levels on that ending date. Coverage Prices (the floor prices) ranging from 70 percent to 95 percent of EEV are available with varying premium rates. Based on individual producers' needs or risk preferences, different levels of coverage can be selected. The cost per cwt (Rate multiplied by Coverage Price) is available along with the actual end date of coverage. Finally, after the end date is reached, AEV will be determined for

each endorsement length. An indemnity will be paid if AEV is less than the Coverage Price.

3.3 USDA Web Site

The USDA Risk Management Agency maintains a Web site that provides endorsement lengths, EEV, Rates, Cost per cwt, End Dates, and AEV each day when LRP is available. The site lists all the endorsement lengths available on a particular day with varying levels of coverage (70 percent to 95 percent) for each length. Also, dates and prices are archived since the program's inception. The Web site is available at www3.rma.usda.gov/apps/livestock_reports/lrp_select_criteria.cfm.

To access pricing information from the USDA Web site, follow these steps (after steps 1-4, click the "Next" button):

1. Select a date—When purchasing coverage, the relevant date is the current date. If looking up an AEV from a prior date, select the date on which coverage was initially purchased from the drop-down list. AEV will be posted after the end date is reached.
2. Select a state—This is the state in which the livestock to be insured are located (see Section 1.4).
3. Select the commodity—This selects whether coverage is for swine, fed cattle, or feeder cattle (see Section 1.3).
4. Select the type of livestock—This page selects a sub-class for the covered livestock. For swine and fed cattle, there is only one type. However, for feeder cattle, there are a total of eight types. There are steers, heifers, Brahman breeds, and dairy breeds, and each group is divided into two weight classes. Weight 1 and Weight 2 represent feeder cattle weighing less than 600 pounds and 600 to 900 pounds, respectively.
5. Click the "Create Report" button.

The USDA pricing page will look like *Figure 3.1*.

The columns of most interest are labeled on the table. The columns include:

- Column 1—State selected. Remember this is the state where the livestock are located, not necessarily the state where the applicant/insured resides.
- Column 2—Available endorsement lengths. Note that, on a given day, not all possible endorsement lengths (as discussed in Section 1.8) will necessarily be available. If there is not enough market

data (e.g. futures and/or options contracts traded) to determine EEV and premium rates, certain endorsement lengths may not be available. For example, the endorsement lengths with end dates longer than six months away may not be available because the options market for deferred futures contracts may be thinly traded. As a result, there may not be enough market information to generate LRP data for endorsement lengths corresponding to the deferred futures and options contracts.

Column 3—Commodity. This lists whether the insured livestock are swine, feeder cattle, or fed cattle.

Column 4—Type of commodity. This column indicates the sub-class in which the livestock are classified. Columns 3 and 4 in *Figure 3.1* indicate that this pricing page is for Weight 2 feeder steers (weighing 600 to 900 pounds). For fed cattle, there is only one type, steers and heifers, under which all fed cattle are insured. Swine do not have a type designation, and all barrows and gilts are insured under the same contract.

Column 5—EEV. This column lists the USDA expectation of future cash prices on the End Dates for each available endorsement length. These expectations are based on futures and options markets.

Column 6—Coverage Price. These prices are the actual price levels that can be protected with LRP. Column 6 is a function of the coverage level multiplied by EEV (Coverage Price equals EEV multiplied by Coverage Level).

Column 7—Coverage level. This is the percentage of EEV insured, ranging from 70 percent to 95 percent.

Column 8—Coverage Rate. This is the premium rate and is used to calculate the cost of the LRP Insurance.

Column 9—Cost per cwt. This is calculated by multiplying Coverage Price by the Rate. The Cost per cwt listed on the Web site does *not* incorporate the 13 percent government subsidy. To calculate the producer's Cost per cwt, multiply Cost per cwt listed on the Web site by 87 percent.

Column 10—End date. This is the date on which the coverage expires, or the date which the indemnity is determined.

Column 11—AEV for each endorsement length. The AEV is posted after the end date is reached.

LRP Coverage Prices, Rates, and Actual Ending Values - Report for 02/17/2005
USDA subsidizes 13 percent of total LRP premium.

| State | County | Endorsement Length | Commodity | Type | Practice | Crop Year | Expected End Value | Coverage Price | Coverage Level | Rate | Cost Per CWT | End Date | Actual End Value |
|-------|---------|--------------------|-----------|--------------------|---------------------|---------------------------|--------------------|----------------|----------------|----------|--------------|----------|------------------|
| MI | HEMPHRY | 998 ALL COUNTIES | 13 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 98.919 | \$82.070 | 0.930800 | 0.016950 | 1.069 | 05/15/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 13 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 98.919 | \$89.070 | 0.910500 | 0.007540 | 8.715 | 05/19/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 13 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 98.919 | \$88.070 | 0.890100 | 0.006770 | 9.597 | 05/19/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 13 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 98.919 | \$86.070 | 0.870100 | 0.005600 | 8.482 | 05/19/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 13 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 98.919 | \$84.070 | 0.849900 | 0.005032 | 8.423 | 05/19/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 13 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 98.919 | \$82.070 | 0.829700 | 0.004460 | 8.364 | 05/19/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 13 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 98.919 | \$80.070 | 0.809500 | 0.003890 | 8.305 | 05/19/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 13 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 98.919 | \$78.070 | 0.789300 | 0.003320 | 8.246 | 05/19/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 13 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 98.919 | \$76.070 | 0.769100 | 0.002750 | 8.187 | 05/19/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 13 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 98.919 | \$74.070 | 0.748900 | 0.002180 | 8.128 | 05/19/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 13 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 98.919 | \$72.070 | 0.728700 | 0.001610 | 8.069 | 05/19/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 17 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 99.656 | \$82.830 | 0.831200 | 0.004760 | 1.395 | 06/16/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 17 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 99.656 | \$89.830 | 0.811100 | 0.003761 | 1.204 | 06/16/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 21 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.404 | \$82.580 | 0.818300 | 0.003660 | 1.144 | 07/14/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 21 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.404 | \$91.580 | 0.813960 | 0.003660 | 1.144 | 07/14/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 21 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.404 | \$80.580 | 0.811230 | 0.003660 | 1.144 | 07/14/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 21 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.404 | \$89.580 | 0.809601 | 0.003660 | 1.144 | 07/14/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 21 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.404 | \$85.580 | 0.852400 | 0.008200 | 0.709 | 07/14/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 21 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.404 | \$83.580 | 0.832400 | 0.007230 | 0.605 | 07/14/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 21 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.404 | \$81.580 | 0.812500 | 0.005982 | 0.488 | 07/14/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 26 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.813 | \$83.990 | 0.832100 | 0.021343 | 2.064 | 08/18/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 26 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.813 | \$81.990 | 0.812500 | 0.016682 | 1.553 | 08/18/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 26 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.813 | \$89.990 | 0.892600 | 0.014068 | 1.264 | 08/18/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 26 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.813 | \$87.990 | 0.872800 | 0.012450 | 1.094 | 08/18/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 26 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.813 | \$85.990 | 0.853000 | 0.011100 | 0.955 | 08/18/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 26 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.813 | \$83.990 | 0.833100 | 0.010001 | 0.840 | 08/18/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 26 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.813 | \$81.990 | 0.813300 | 0.008562 | 0.702 | 08/18/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 30 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.678 | \$92.030 | 0.914100 | 0.025830 | 2.278 | 09/15/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 30 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.678 | \$90.030 | 0.894200 | 0.018749 | 1.689 | 09/15/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 30 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.678 | \$88.030 | 0.874400 | 0.015233 | 1.341 | 09/15/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 34 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.639 | \$90.040 | 0.895600 | 0.022257 | 2.004 | 10/13/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 34 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 100.639 | \$88.040 | 0.875700 | 0.019378 | 1.786 | 10/13/2005 |
| MI | HEMPHRY | 998 ALL COUNTIES | 39 | 9801 FEEDER CATTLE | 810 STEERS WEIGHT 2 | 997 NO PRACTICE SPECIFIED | 2005 | 99.900 | \$84.000 | 0.940900 | 0.047128 | 4.430 | 11/17/2005 |

Figure 3.1 USDA Pricing Page

3.4 Actual Ending Value

Actual Ending Value (AEV) is determined by a national or regional cash index that is based on cash prices received by producers in large-volume markets. Thus, AEV is generally representative of the cash price a producer would receive for livestock sold anywhere in the U.S. However, livestock markets in some geographic areas result in cash prices more closely related to the broadly representative index price if those areas are weighted more heavily in the index. In calculating the cash index, selected regional or national cash markets are used to calculate a volume weighted average price. Both the information used in calculating the index and the actual index itself are publicly available. Swine, feeder cattle, and fed cattle LRP insurance each use a different cash index to determine AEV.

Swine AEV

The AEV for swine is a two-day volume weighted average of the “Negotiated” and “Swine or Pork Market Formula” national net prices. This information is published daily by the USDA Agricultural Marketing Service (AMS) in the LM_HG201 report, available online at www.ams.usda.gov/mnreports/lm_hg201.txt. The AEV is the average of the current and previous day’s “Negotiated” and “Swine or Pork Market Formula” prices weighted for the number of head.

The swine AEV is equivalent to the Chicago Mercantile Exchange Lean Hog Cash Index, which uses the data from the USDA-AMS report discussed above. This source for the information is convenient because the prices are already a two-day volume weighted average. Therefore, the CME Lean Hog Cash Index is the AEV for LRP insurance, and is available online at **www.cme.com**.

Fed Cattle AEV

The LRP Fed Cattle AEV is the 5-Area Weekly Weighted Average Direct Slaughter Steer Price for steers grading 35 percent to 65 percent choice sold FOB feedyard on a live weight basis. The areas included are Texas/Oklahoma, Kansas, Nebraska, Colorado, and Iowa/Minnesota. This price information is published weekly by USDA-AMS in the LM_CT150 report, available online at www.ams.usda.gov/mnreports/lm_ct150.txt.

When insuring fed heifers, the insurance contract is still indemnified on the 5-Area steer price. This is important because the price differential between fed heifers and steers must be considered when calculating expected sales prices. Fed heifers are not included in the 5-Area steer price, so the AEV may not be as representative of actual fed heifer prices. However, the price differential for fed heifers and steers is generally fairly small. USDA-AMS does report a 5-Area heifer

price, but fed heifers are still insured against the steer price.

Feeder Cattle AEV

The CME Feeder Cattle Cash Index Price is used as the AEV for Feeder Cattle LRP insurance. This index represents a national average comprised of representative feeder steer prices reported from across the country. The index includes sales of 700 to 849 pound Medium and Medium/Large Frame # 1 steers and is a seven-day average price. The report can be found online at www.cme.com. Relative to the 5-Area steer price, the Feeder Cattle Cash Index does not weight Nebraska feeder cattle prices as heavily. As a result, the AEV for feeder cattle is not as representative of Nebraska prices as the fed cattle AEV is for Nebraska fed cattle. Chapter 4 will discuss the implications of this difference. When insuring feeder heifers, lighter weight cattle, or Brahman and dairy breeds, the same index is used as a base, but an adjustment factor is included. These adjustment factors are discussed in the next section.

3.5 Feeder Cattle Price Adjustment Factors

Feeder Cattle LRP insurance covers a broad range of eligible feeder cattle. However, the Feeder Cattle Cash Index, against which all Feeder Cattle LRP contracts are indemnified, represents a relatively narrow segment of cattle eligible for the program. Substantial variation in the price of feeder cattle typically exists based on differences in weight, sex, and breed. Price adjustment factors help to more accurately reflect the value of cattle not actually represented by the Feeder Cattle Cash Index. The adjustments essentially scale the index up or down to reflect higher or lower values for a particular type of feeder cattle. The factors are applied to EEV, Coverage Price, Rate, and AEV. The price adjustment factors are shown in *Table 3.1* below.

Table 3.1 Feeder Cattle Price Adjustment Factors.

| | <i>Steers</i> | <i>Heifers</i> | <i>Brahman</i> | <i>Dairy</i> |
|---------------|-----------------|-----------------|-----------------|-----------------|
| <i>Weight</i> | <i>Weight 1</i> | <i>Weight 1</i> | <i>Weight 1</i> | <i>Weight 1</i> |
| <600 lbs | 110% | 100% | 100% | 100% |

| | <i>Steers</i> | <i>Heifers</i> | <i>Brahman</i> | <i>Dairy</i> |
|---------------|-----------------|-----------------|-----------------|-----------------|
| <i>Weight</i> | <i>Weight 2</i> | <i>Weight 2</i> | <i>Weight 2</i> | <i>Weight 2</i> |
| 600-900 lbs | 100% | 90% | 90% | 80% |

Because the Feeder Cattle Index represents 700 to 849 pound steers, the Weight 2 steer category can be viewed as the base value because it is the group that is

most representative of the index. All the other categories are then adjusted relative to that level. Heifers, Brahman, and dairy cattle of the same weight class sell at a discount relative to steers; therefore, the price adjustment factors lower the index to reflect that difference in value. Conversely, lighter weight steers sell at a premium to heavier steers, so Weight 1 steers are valued higher at a factor of 110 percent. Within the Weight 1 category, heifers, Brahman, and dairy feeder cattle are valued lower than the Weight 1 steer category; accordingly, those categories have price adjustment factors that lower the index relative to Weight 1 steers to more closely reflect the value of those cattle. Feeder bulls weighing less than 600 pounds are insured in the same category as Weight 1 steers. By accessing the coverage pricing page as described in Section 3.3, the price adjustment factors are automatically applied to EEV, Coverage Price, premium, and AEV so no additional adjustments need to be made.

It is important to note that these adjustments are fixed percentages and do not perfectly account for the differences in value between different weights and types of feeder cattle. The price or value of a Weight 1 heifer or dairy calf is not necessarily the same as a Weight 2 steer even though the price adjustment factors might imply so (each having a constant price adjustment factor of 100 percent). In some cases, the adjustment may not be large enough, and, in others, the adjustment could overcompensate for the differential, depending on market conditions. The factors simply lower the differential between actual cash prices of other types of cattle and the index against which the cattle are indemnified. Doing so reduces part of the risk of changes in price spreads between cattle of differing sex, weight, or breed.

3.6 Purchasing LRP—an Example

At this point, it is beneficial to work through an example of how LRP would work for a producer. In other words, what are all the relevant prices and costs to someone who actually purchases LRP? Important aspects include selecting a Coverage Price and calculating producer premiums, both on a per cwt basis and in total. The total premium is important because it is due at the time the coverage is obtained.

Assume that on October 29, Joe Farmer decides to cover his feeder steer price risk with LRP. Joe is weaning 100 head of steers that he intends to background through February. He anticipates the steers will weigh about 650 pounds when he sells them in February. The LRP contract with an end date closest to his projected marketing period is the 17-week endorsement, which ends on February 25. This end date is within Joe’s projected marketing period, but it

provides some flexibility if he needs to move his actual cash sale date forward (the cattle can be sold up to 30 days prior to the end date without voiding coverage, see Section 1.8). After accessing the USDA pricing Web site for October 29, Joe learns that the EEV for Weight 2 Steers for the 17-week endorsement length is \$102.66/cwt. That is the price USDA-RMA estimates the Feeder Cattle Cash Index will be on February 25. Joe selects a Coverage Price of \$92.86/cwt, or 90.45 percent of EEV. The premium rate for that particular coverage level is 0.01526. In other words, every dollar of insured production incurs a cost of \$0.01526. Subsequently, the Cost per cwt is \$1.417/cwt ($0.01526 \times \$92.86/\text{cwt}$). However, recall that 13 percent of the premium is government subsidized. Joe's actual Cost per cwt will be \$1.233/cwt ($\$1.417/\text{cwt}$ multiplied by 87 percent). He decides this is a favorable cost for the level of price protection provided. Because Joe already has a basic policy in place with his crop insurance agent, he simply needs to contact the agent and obtain a Specific Coverage Endorsement. See Appendix 5 for an example of a Specific Coverage Endorsement Form. With the submission of the SCE, Joe *must* include payment for the total premium cost.

To calculate the total premium, first determine the total amount of insured production. Joe has 100 head of steers he expects to weigh 650 pounds, or 6.5 cwt. His total insured production is 650 cwt (100 head multiplied by 6.5 cwt/head). The next step is to calculate the value of insured production by multiplying insured production times the Coverage Price. In this case, the value insured is \$60,359 (650 cwt multiplied by \$92.86/cwt). The total premium rate is determined by multiplying the value of insured production by the premium rate. The total premium for Joe's coverage is \$921.08 (\$60,359 multiplied by 0.01526). Finally, Joe only pays 87 percent of the total premium as the rest is subsidized. His portion of the premium is \$801.34.

Once LRP is purchased, recall that the price coverage is in place and cannot be lifted before the end date (Sections 2.3 and 2.6). The end date is the only time the coverage has any value. Once the end date is reached, Joe can determine whether or not an indemnity is due. Assume on February 25, the feeder cattle AEV (the CME Feeder Cattle Cash Index) was

\$101.25/cwt. The AEV is higher than Joe's Coverage Price of \$92.86/cwt, meaning Joe will not receive an indemnity for his LRP coverage. If the AEV had been lower than Joe's Coverage Price (\$92.86/cwt), he would collect an indemnity in the amount of the difference. Assume, for example, that on February 25, the AEV for feeder cattle had actually been \$85.00/cwt. The LRP coverage would pay an indemnity of \$7.86/cwt ($\$92.86/\text{cwt}$ minus $\$85.00/\text{cwt}$). Joe's total indemnity would be calculated based on total insured production; in this case, the total indemnity would be \$5,109 ($\$7.86/\text{cwt}$ multiplied by 650 cwt).

3.7 Indemnity Payments

If, at the end date of LRP coverage, the policy holder has the right to an indemnity (AEV is less than the Coverage Price), the insurance company will issue a letter of probable loss. This letter tells producers that they likely have the right to collect an indemnity on their LRP coverage. To collect the indemnity, the producer must file a claim form with the insurance company within 60 days of the coverage end date. This is a form that indicates the policy holder has a right to collect an indemnity on an SCE. The insurance company then has 60 days upon receipt of the claim form to pay the indemnity. Indemnity payments are considered taxable income which apply to the tax year in which they are received. There is no option to defer the indemnity payments as with crop insurance. See Appendix 6 for an example of a claim form.

3.8 Summary

This chapter explained how the LRP program operates. Whereas the first chapters covered a broad view of the LRP program and its provisions, this chapter showed how a producer uses the program. The chapter covered technical terminology such as EEV, Coverage Price, End Date, and AEV. Additionally, the chapter explained which cash indexes are used to determine AEV. Price adjustment factors for Feeder Cattle LRP were also covered. Finally, an example was presented that included evaluating LRP coverage, calculating premiums, and determining indemnities.

Check for Understanding: Chapter 3

1. Expected national or regional cash index price for a future date estimated by USDA. _____
2. Amount paid by the insurance company if Actual Ending Value (AEV) is below Coverage Price on the end date. _____
3. Date insurance coverage expires and indemnity is determined. _____
4. Actual level of price protection provided by LRP. _____
5. The cash index price on the expiration of coverage which, when compared to the Coverage Price, determines whether an indemnity is due. _____
6. T F LRP swine AEV is the CME lean hog cash index.
7. What are the states included in the 5-Area Weekly Weighted Average Direct Steer Price used as the LRP fed cattle AEV?

8. T F Feeder steers and heifers, lighter weight feeder cattle, and Brahman and dairy breeds each use different AEVs when calculating indemnities.
9. Which type of cattle is most representative of the feeder cattle AEV and therefore can be considered as the “base value” for price adjustment factors?
 - a) 600-900 lb. steers
 - b) 600-900 lb. heifers
 - c) <600 lb. steers
 - d) <600 lb. heifers
10. T F If a producer has the right to collect an indemnity but fails to submit a claim form within 60 days of the end date, the producer forfeits the right to that indemnity.

Chapter 4

Basis Considerations for LRP Insurance

In this chapter, you will learn:

- how LRP basis differs from traditional futures basis;
- why fed cattle and swine LRP basis are less variable than futures basis; and
- why feeder cattle LRP basis variability is similar to futures basis variability.

4.1 Introduction

In the first three chapters, LRP insurance, as a livestock price hedging instrument, was compared to using options contracts. As a hedging alternative, it is important to compare and contrast LRP with traditional futures and options hedging, and many similarities and differences have already been addressed. A general overview of LRP insurance was provided in the first two chapters of this course. Additionally, some specific underwriting rules and provisions along with limitations, advantages, and disadvantages imposed by those rules were covered. Chapter 3 discussed the mechanics of LRP including how to locate Coverage Prices and premiums, how Actual Ending Value (AEV) is determined, and how to calculate premium costs for LRP. This chapter examines basis risk associated with LRP insurance and compares it to the basis risk associated with futures and options hedges. Also, the differences between LRP basis and futures basis will be discussed for fed cattle, feeder cattle, and swine LRP.

4.2 LRP Basis vs. Futures Basis

When using CME put options or futures contracts to protect against price level changes, hedgers remain exposed to basis risk, a change in the difference between their local cash price and futures price¹. However, hedging is an effective risk management strategy because, on average, basis is much less variable than price. Hedging eliminates price risk, or the risk that futures prices will decrease, but it does not eliminate basis risk. As a result, livestock producers using futures or options to hedge selling prices often use historical basis data to forecast expected basis and cash selling prices for future livestock sales. Similar

to using futures or options, cattle producers using LRP insurance to hedge sales prices are also exposed to a type of basis risk. However, the difference between producers' selling price and futures price, or *futures basis*, is not relevant when using LRP. Instead, the difference between the producers' selling price and the cash price index used to determine AEV, or *LRP basis*, is used to calculate the expected selling price for future sales of livestock. Changes in the relationship between a producers' cash sale price and the AEV (i.e., changes in the LRP basis) will determine whether the actual selling price resulting from the LRP hedge is equal to the expected selling price. Consequently, forecasting LRP basis is important when hedging with LRP.

In general, when hedging with futures or options contracts, a producer would calculate an expected selling price (ESP) for the livestock. ESP is calculated by adding the basis expected at the time the livestock will be sold to the price level hedged with the futures or options contracts. For example, assume Joe Farmer expects to sell fed cattle in September and hedges a price level of \$85.00/cwt by selling October CME Live Cattle futures contracts. Joe determines from his state's Extension service that the historical futures basis for September for his area is -\$2.00/cwt (the cash market price is expected to be \$2.00/cwt under the October CME Fed Cattle contract price in September). Joe's expected selling price for the fed cattle is \$83.00/cwt (not including commission or brokerage fees associated with the futures trades). When Joe actually sells the cattle in September, his actual selling price (ASP) will be equal to \$85.00/cwt plus the actual basis in September. If the actual basis is -\$2.00/cwt as expected, then his ASP will equal ESP at \$83.00/cwt. If actual basis in September turns out to be stronger than expected at -\$1.00/cwt, ASP would be higher at \$84.00/cwt. Conversely, if actual basis is weaker than his expectation at -\$3.00/cwt, ASP would be lower at \$82.00/cwt. When hedging with futures contracts, the ASP only deviates from ESP by basis being weaker or stronger than expected. When hedging with options, producers are still exposed to the same type of basis risk—ASP can be higher or lower if basis is stronger or weaker than expected. However, options hedges can have a higher ASP if prices increase because options allow hedgers to participate in price rallies.

In much the same way, hedging with LRP requires an understanding of how basis will affect the outcome

¹ University of Nebraska-Lincoln Extension Circulars EC04-833, EC04-834, and EC04-835, covering hedging and basis considerations for swine, fed cattle, and feeder cattle LRP insurance, are available online at www.lrp.unl.edu. They provide a review of futures and options hedging as well as historical LRP basis data that can be used to make basis predictions when hedging with LRP.

of a hedge. Keep in mind that LRP provides a price floor or minimum expected selling price (MESP—similar to a put option hedge) that can be calculated by subtracting premium cost from the Coverage Price and then adding basis. If AEV is less than the Coverage Price on the end date of the coverage endorsement, an indemnity will be paid in the amount of the difference. When this happens, ASP will be equal to MESP if the actual basis is the same as the forecasted basis.

To illustrate this, assume Joe Farmer has hogs he intends to sell near the end of July and he purchases LRP insurance with a Coverage Price of \$66.41/cwt. The premium for the insurance is \$1.65/cwt (after subsidy). Joe expects LRP basis (the difference between his local cash market price and the CME Lean Hog Index) to be about \$1.00/cwt at the end of July. (This expectation is based on historical data which are reported in UNL Extension Circulars EC04-833, 834, and 835 located online at www.lrp.unl.edu). Therefore, Joe's MESP is \$65.76/cwt (\$66.41/cwt less \$1.65/cwt plus \$1.00/cwt). Now assume that when coverage ends and Joe sells his hogs, AEV is \$62.41/cwt, but Joe's LRP basis is \$1.00/cwt as expected. He will receive a cash price of \$63.41/cwt (AEV + \$1.00/cwt basis) plus a \$4.00/cwt indemnity payment. As a result, his ASP is \$65.76/cwt (cash price of \$63.41/cwt plus \$4.00/cwt LRP indemnity less \$1.65/cwt LRP premium). Because Joe's basis forecast was correct and prices decreased, ASP was equal to MESP. If LRP basis had strengthened, Joe would have received a higher cash price in his local market (the AEV would be unchanged), and his ASP would have been higher than MESP. For example, if LRP basis turned out to be \$3.00/cwt, Joe's ASP would be \$67.76/cwt (\$65.41/cwt plus \$4.00/cwt less \$1.65/cwt). Conversely, if LRP basis had weakened, Joe would have received a lower cash price and ASP would have been lower than MESP. If basis had been at -\$1.00/cwt, Joe's ASP would be \$63.76/cwt (\$2.00/cwt lower than MESP) because his cash price would be \$2.00/cwt lower than his forecast. If prices had increased and AEV was higher than the Coverage Price on the end date (assuming actual basis equaled forecasted basis), ASP would be higher than MESP. However, LRP basis risk is still present in that an LRP basis weaker (stronger) than forecasted will decrease (increase) the ASP even when AEV is above the Coverage Price.

From this discussion, it is apparent that basis risk is an important consideration for hedging both with futures or options contracts and with LRP insurance. However, LRP basis is generally more advantageous for Nebraska producers because Nebraska cash market prices are weighted relatively heavily into the cash price indexes used to determine AEV. In other words,

LRP protection is based on prices closer to typical Nebraska selling prices. In general, the result is lower basis variability, or risk that basis will vary from an expected future value. Reduced basis risk means it is easier for a producer to more accurately forecast expected selling prices for future livestock sales. This allows for financial planning and protection of break-even sale prices because ESP is a general expectation of gross revenue. By calculating ESP, budgetary decisions can be made with more confidence and precision. The next three sections will discuss LRP basis for fed cattle, swine, and feeder cattle.

4.3 Fed Cattle LRP Basis

Fed Cattle AEV is determined by the 5-Area Weekly Weighted Average Direct Slaughter Steer Price for steers grading 35 percent to 65 percent choice sold FOB on a live weight basis. Recall from Section 3.4 that the 5-Area price includes cash prices from Texas/Oklahoma, Kansas, Colorado, Iowa/Minnesota, and Nebraska. Nebraska prices, then, are weighted relatively heavily into calculating the 5-Area price. As a result, the AEV closely follows the Nebraska cash market. *Figure 4.1* shows futures basis and LRP basis for Nebraska fed steers from January 2000 to January 2005. As the graph shows, LRP basis is fairly close to zero meaning there is little difference between the Nebraska cash price and the 5-Area price. Also, LRP basis is quite stable—its range is relatively narrow and fluctuations small. Futures basis, however, shows much more variability in that it experiences a wider range and greater fluctuations than LRP basis. For example, prior to September 2003 when atypical market conditions caused unusual cash price increases, LRP basis ranged from about \$2.00/cwt to -\$2.00/cwt while futures basis ranged from about \$5.00/cwt to -\$5.00/cwt. When futures basis peaked in October 2003 at \$13.24/cwt, LRP basis was much smaller at \$5.32/cwt. Likewise, when futures basis reached a minimum of -\$7.52/cwt, LRP basis was at -\$2.99/cwt.

Table 4.1 summarizes statistics for LRP basis and traditional futures basis for Nebraska direct steers and heifers from January 2000 to January 2005. The mean LRP basis for Nebraska fed steers of \$0.07/cwt indicates that, on average, the Nebraska direct steer price is \$0.07/cwt higher than the 5-Area price. The Nebraska fed heifer price averaged \$0.16/cwt higher than the 5-Area price from January 2000 to January 2005 (during this time the Nebraska fed heifer price averaged \$0.09/cwt higher than the Nebraska fed steer price). The mean steer and heifer LRP basis was \$0.36/cwt and \$0.37/cwt higher than the traditional nearby futures basis, respectively. The range in LRP basis from January 2000 to January 2005 was about one-third to

one-half of the range in futures basis. Standard deviation is a measure of variability, and a higher standard deviation for basis is associated with more variability and increased difficulty in forecasting the basis for a future date. As shown in *Table 4.1*, the standard deviation for Nebraska steer and heifer LRP basis is considerably lower than for futures basis, indicating that LRP basis is less variable (more predictable) about its mean. There is a reduction in standard deviation of more than 60 percent when using LRP basis relative to futures basis for both fed steers and heifers.

Figure 4.2 shows seasonal Nebraska LRP basis from 2001 to 2005. The graph shows that average

LRP basis in Nebraska is typically weak early in the year and increases through spring, peaking in May. It is expected that basis would weaken through the second half of the year, eventually reaching a low in December. However, as the graph shows, average basis remained strong, ranging from \$0/cwt to \$1.00/cwt through most of the second half of the year. The reason for this disparity is that in the fall of 2003, cattle markets reached historically high prices and basis was also much stronger than usual. The maximum line shows the unusually strong basis from 2003. The average, then, is likely higher than what would be typical because it incorporates these outliers.

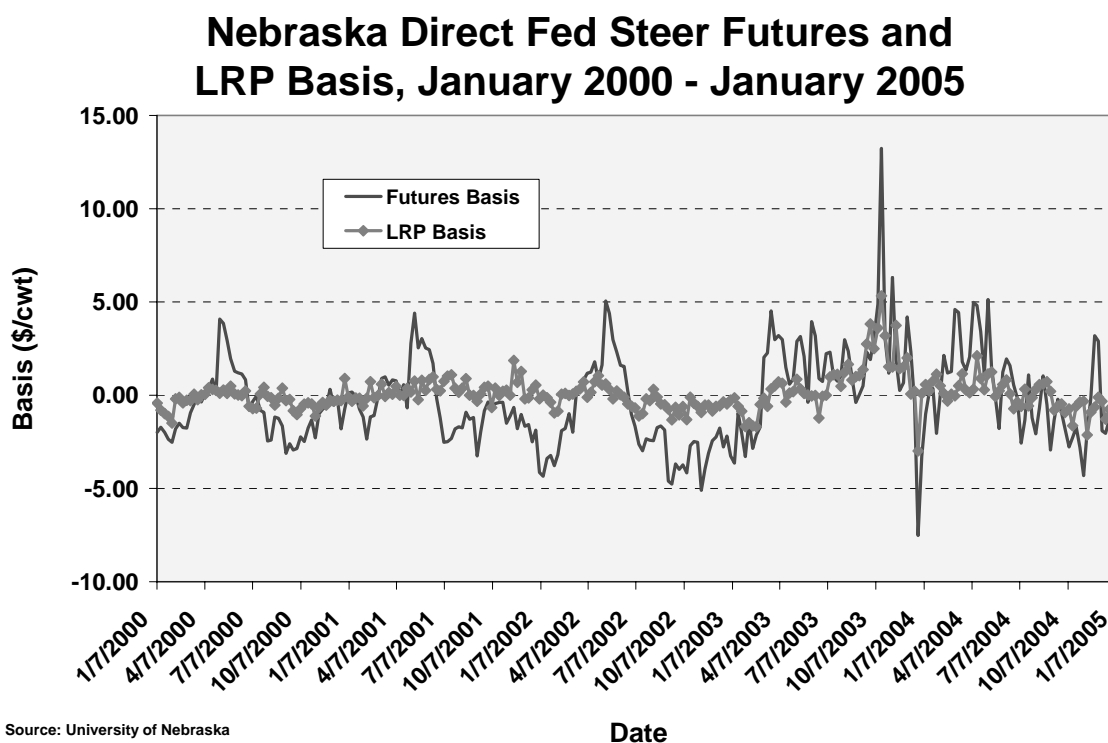
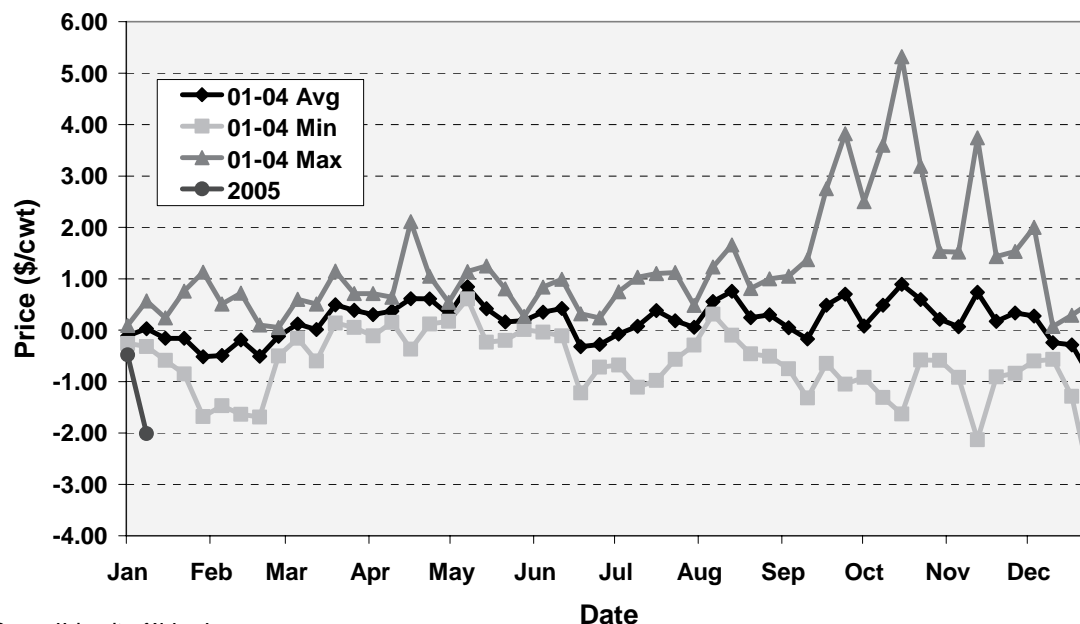


Figure 4.1

Table 4.1. Nebraska Direct Steer and Heifer LRP Basis and Futures Basis Summary Statistics, January 2000-January 2005.

| | LRP Basis (\$/cwt) | Futures Basis (\$/cwt) | LRP Basis (\$/cwt) | Futures Basis (\$/cwt) |
|--------------------|--------------------|------------------------|--------------------|------------------------|
| | <i>Steers</i> | | <i>Heifers</i> | |
| Mean | 0.07 | -0.29 | 0.16 | -0.21 |
| Minimum | -2.99 | -7.52 | -2.34 | -4.85 |
| Maximum | 5.32 | 13.24 | 4.17 | 12.09 |
| Standard Deviation | 0.94 | 2.46 | 0.82 | 2.29 |

Nebraska Direct Fed Steer LRP Basis, 2001-2005



Source: University of Nebraska

Figure 4.2

4.4 Swine LRP Basis

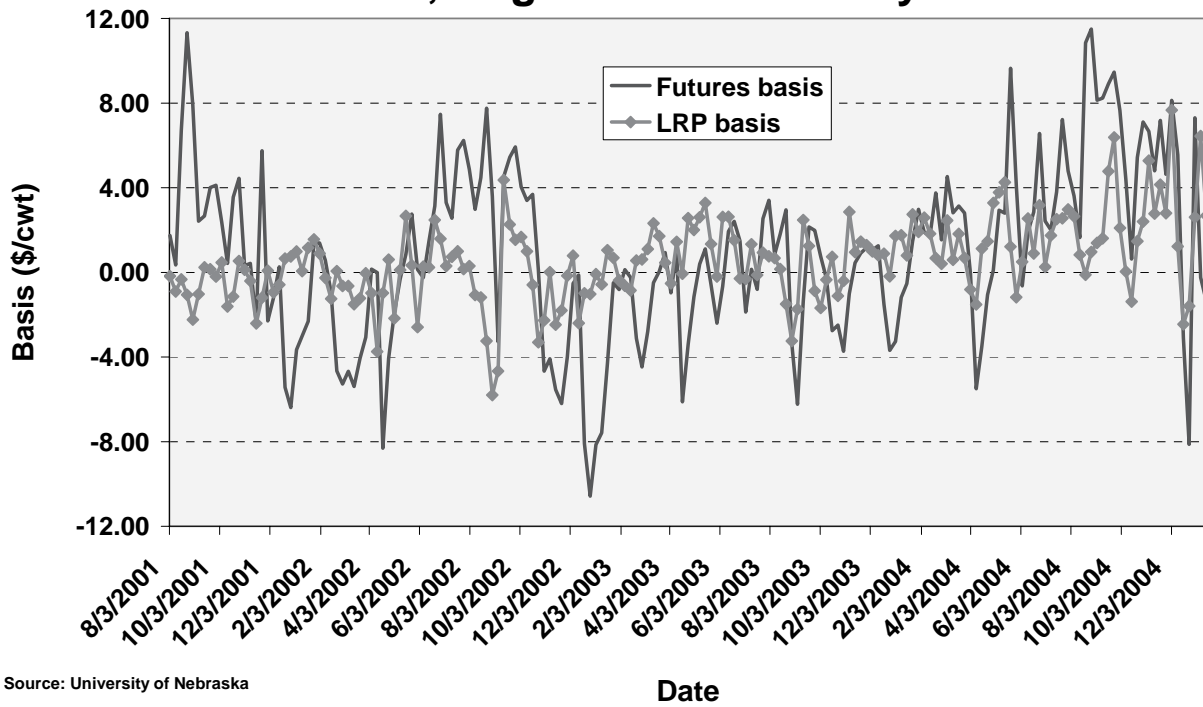
Swine LRP basis is also generally more stable and has less variation than futures basis. Swine LRP is indemnified on the CME Lean Hog Index which represents an average national cash price. *Figure 4.3* shows futures and LRP basis for Nebraska producers from August 2001 to January 2005 (LRP basis is calculated using Western Corn Belt [WCB] prices which are generally representative of Nebraska prices²). *Figure 4.3* indicates that LRP basis is generally more stable and closer to zero than futures basis. Futures basis ranges from about \$11.00/cwt to -\$11.00/cwt while LRP basis typically ranges from about \$4.00/cwt to -\$4.00/cwt. In addition, changes in futures basis tend to be more extreme than changes in LRP basis. This means AEV tracks more closely to WCB prices (and, therefore, Nebraska prices) than the futures market. This is in large part because the CME index price (used to determine AEV) includes in its weighted average prices for hog sales made in the WCB. This is also true for other price series including Eastern Corn Belt, Iowa/Southern Minnesota, and national price series. Another important factor is that hogs are a fairly uniform commodity—there is little substantive difference between hogs grown in Nebraska versus hogs grown in Illinois or North Carolina. Therefore, hog prices are fairly equivalent across different parts of the country.

² University of Nebraska Extension Circular EC04-833, *Hedging and Basis Considerations For Swine Livestock Risk Protection Insurance*, reports historical LRP basis data for other price series including Eastern Corn Belt, Iowa/Southern Minnesota, and national prices.

With somewhat consistent prices across the country, the index of hog prices tends to be relatively stable and representative of most hogs. Still, there is not always a one-to-one correspondence between the WCB and the CME index, so WCB average hog LRP basis changes.

Table 4.2 reports summary statistics for LRP basis and traditional futures basis for hogs using the WCB price series as well as Iowa/Southern Minnesota (IA/S. Minn.), Eastern Corn Belt (ECB), and national base and net price series from August 2001 to January 2005. The mean LRP basis for the WCB average hog price of \$0.57/cwt indicates that, on average, the WCB average hog price is \$0.57/cwt higher than the CME index. Relative to the CME index, the base price series are lower than the average price series (i.e., the base price series result in a weaker basis) because the average price series include quality premiums/discounts which are typically positive (the base price series does not include premiums). The mean LRP basis for all the price series was about \$0.34/cwt lower than the traditional nearby futures basis. They all vary by the same amount because they are calculated based on the same AEV and futures prices, which are the same for all the regional price series. The range in LRP basis was substantially smaller than the range in futures basis. Like fed cattle basis, swine LRP basis is much less variable, as measured by standard deviation, than futures basis meaning LRP basis is easier to accurately predict. Standard deviation for LRP basis is less than half of standard deviation for futures basis for all the “Average” or “Net” price series and slightly over half

Western Corn Belt Swine Futures and LRP Basis, August 2001 - January 2005



Source: University of Nebraska

Figure 4.3

Table 4.2. Swine LRP Basis and Futures Basis Summary Statistics, August 2001-January 2005.

| Hog Price Series | Mean | Minimum | Maximum | Standard Deviation |
|---------------------|----------|----------|----------|--------------------|
| | (\$/cwt) | (\$/cwt) | (\$/cwt) | (\$/cwt) |
| WCB Base | | | | |
| LRP Basis | -2.68 | -17.07 | 2.58 | 2.36 |
| Futures Basis | -2.33 | -23.60 | 8.42 | 4.36 |
| WCB Average | | | | |
| LRP Basis | 0.57 | -5.80 | 7.67 | 1.93 |
| Futures Basis | 0.91 | -10.58 | 11.50 | 4.20 |
| IA/S. Minn. Base | | | | |
| LRP Basis | -2.81 | -17.02 | 2.63 | 2.53 |
| Futures Basis | -2.46 | -23.56 | 8.29 | 4.58 |
| IA/S. Minn. Average | | | | |
| LRP Basis | 0.51 | -5.62 | 6.68 | 1.88 |
| Futures Basis | 0.85 | -10.57 | 11.86 | 4.20 |
| ECB Base | | | | |
| LRP Basis | -3.24 | -19.93 | -0.19 | 2.26 |
| Futures Basis | -2.90 | -23.32 | 9.22 | 4.25 |
| ECB Average | | | | |
| LRP Basis | -0.41 | -6.21 | 2.59 | 1.44 |
| Futures Basis | -0.07 | -10.27 | 11.97 | 4.00 |
| National Base | | | | |
| LRP Basis | -2.22 | -6.36 | 2.52 | 1.73 |
| Futures Basis | -1.88 | -10.33 | 10.37 | 3.67 |
| National Net | | | | |
| LRP Basis | 0.27 | -3.97 | 5.79 | 1.82 |
| Futures Basis | 0.62 | -8.16 | 12.94 | 3.67 |

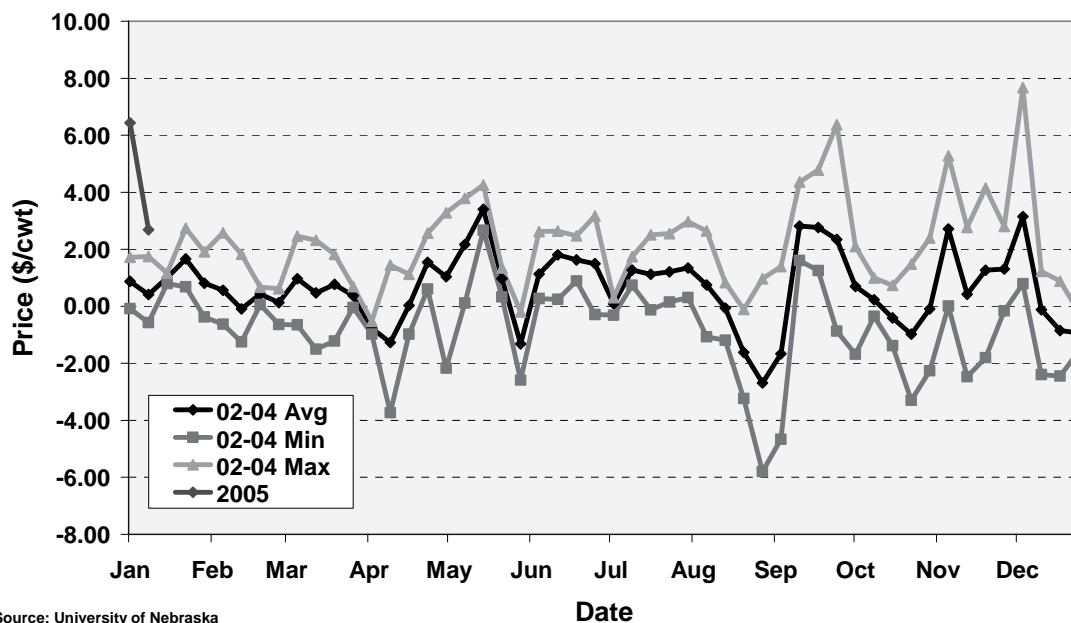
for the “Base” price series. This indicates a significant reduction in basis risk when using LRP basis relative to futures basis.

Figure 4.4 shows seasonal swine LRP basis patterns. The LRP basis is fairly constant through the first part of the year at around \$1.00/cwt before increasing in mid-April and peaking in May at about \$4.00/cwt. Then it decreases through the summer before reaching a low of about -\$3.00/cwt near the end of August. LRP basis then strengthens through the end of the year. As with fed cattle, the average basis for the fall is likely abnormally high because of unusually strong basis between August and December 2004.

4.5 Feeder Cattle LRP Basis

Producers selling feeder cattle in Nebraska do not experience the same reduction in LRP basis variability relative to futures basis as those selling fed cattle and hogs. *Figure 4.5* shows futures and LRP basis for 700 to 799 pound steers for Nebraska from January 2001 to January 2005. Both futures and LRP basis are positive in Nebraska and vary substantially, indicating that, on average, Nebraska cash prices are higher than both AEV and feeder cattle futures. One factor contributing to the variation between Nebraska feeder cattle prices and national average prices is that the national price includes sales from many different parts of the country.

Western Corn Belt Weekly Negotiated Average LRP Basis, 2002-2005



Source: University of Nebraska

Figure 4.4

Furthermore, unlike hog sales, much variation in quality exists in feeder cattle markets, and as a result, there can be significant differences in feeder cattle prices from various parts of the country. Therefore, although the national cash index is generally representative of Nebraska prices, there is still significant variation between the two.

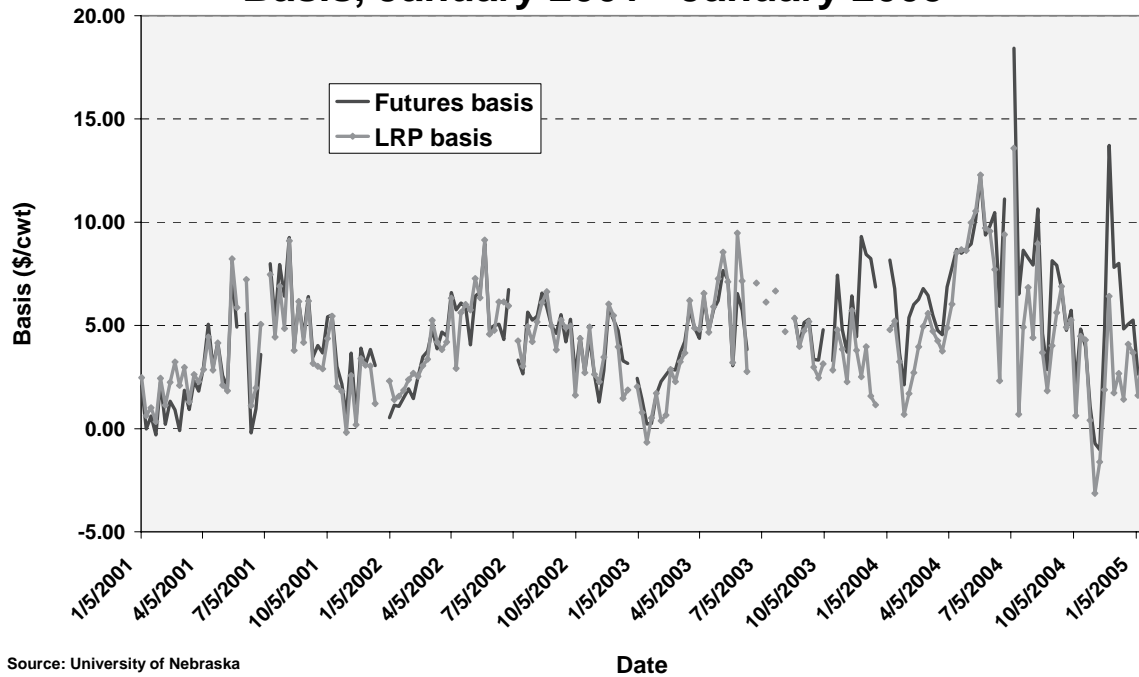
Table 4.3 reports summary statistics for LRP basis and futures basis for Nebraska feeder steers and heifers weighing from 500 to 900 pounds in 100-pound increments from 2002 to 2004. The mean LRP basis for Nebraska 700 to 800 pound feeder steers of \$4.44/cwt indicates that, on average, the Nebraska 700 to 800 pound feeder steer price is \$4.44/cwt higher than the CME feeder cattle cash index (LRP AEV). The stronger LRP and futures basis for 600 to 700 pound feeder steers is a reflection of higher cash prices paid (\$/cwt) for lighter animals. For corresponding weight categories, steer futures basis is stronger than heifer futures basis due to higher cash prices paid for steers as a result of better feeding performance (e.g., average daily gain, feed efficiency). The substantially lower LRP basis for 500 to 600 pound steers relative to futures basis is a result of the 110 percent price adjustment factor applied to AEV (see Section 3.5). Similarly, the heavier weight feeder heifer LRP basis averages are higher than the futures basis due to the 90 percent price adjustment factor. Additionally, the range observed for LRP basis versus futures basis varies. For some weight and sex categories, it is slightly smaller

for LRP basis while in others, the range in futures basis is smaller. Variability in basis, again measured by standard deviation, was slightly smaller for LRP basis than for futures basis for all steer and heifer weight categories except 500 to 600 pound steers. This suggests that LRP basis is slightly less variable (i.e., slightly easier to predict) than futures basis. However, the difference in variability between LRP and futures basis is relatively small for feeder steers and heifers in comparison to the differences in LRP and futures basis variability for fed cattle and swine. Essentially, the decrease in basis risk when hedging with LRP versus futures contract is negligible for feeder cattle.

Figure 4.6 shows the seasonal trend for 700 to 799 pound feeder steer LRP basis in Nebraska. Seasonally, LRP basis is lowest in the winter months (November to February). It strengthens through the spring and reaches a maximum level in May before declining through the summer and fall months. The minimum LRP basis is generally around \$1.00/cwt in November while the highest is about \$8.00/cwt in May. For 500 to 599 pound feeder steers in Nebraska, LRP basis increases through the first part of the year and peaks in late March. Basis then decreases through the middle of the year and reaches a low in October before rising again through the end of the year³.

³Seasonal basis trends for various weights of feeder steers and heifers in Nebraska are reported in University of Nebraska-Lincoln Extension Circular EC04-835, *Hedging and Basis Considerations For Feeder Cattle Livestock Risk Protection Insurance*.

Nebraska 700-799 lb. Steer Futures and LRP Basis, January 2001 - January 2005



Source: University of Nebraska

Figure 4.5

Table 4.3. Nebraska Feeder Steer and Heifer LRP Basis and Futures Basis Summary Statistics, January 2002-December 2004.

| Feeder Cattle Price Series | Mean | Minimum | Maximum | Standard Deviation |
|----------------------------|----------|----------|----------|--------------------|
| | (\$/cwt) | (\$/cwt) | (\$/cwt) | (\$/cwt) |
| 500-600 lb. Steer | | | | |
| LRP Basis | 9.56 | -5.65 | 23.08 | 7.02 |
| Futures Basis | 19.60 | 5.74 | 36.23 | 6.97 |
| 600-700 lb. Steer | | | | |
| LRP Basis | 10.19 | 1.30 | 21.75 | 4.13 |
| Futures Basis | 11.07 | 1.74 | 26.60 | 4.34 |
| 700-800 lb. Steer | | | | |
| LRP Basis | 4.44 | -3.13 | 13.58 | 2.62 |
| Futures Basis | 5.32 | -1.02 | 18.43 | 2.77 |
| 800-900 lb. Steer | | | | |
| LRP Basis | 0.03 | -7.88 | 7.18 | 2.38 |
| Futures Basis | 0.92 | -7.43 | 12.03 | 2.84 |
| 500-600 lb. Heifer | | | | |
| LRP Basis | 9.02 | -1.37 | 18.96 | 5.08 |
| Futures Basis | 9.93 | -1.54 | 20.43 | 5.35 |
| 600-700 lb. Heifer | | | | |
| LRP Basis | 11.63 | 3.10 | 18.55 | 3.21 |
| Futures Basis | 3.39 | -5.14 | 11.73 | 3.36 |
| 700-800 lb. Heifer | | | | |
| LRP Basis | 7.31 | -0.53 | 18.34 | 2.48 |
| Futures Basis | -0.93 | -9.15 | 8.10 | 2.59 |
| 800-900 lb. Heifer | | | | |
| LRP Basis | 4.03 | -7.67 | 11.32 | 2.52 |
| Futures Basis | -4.19 | -18.15 | 3.41 | 2.71 |

Nebraska Combined Weighted Average 700-799 lb. Steer LRP Basis, 2002-2005

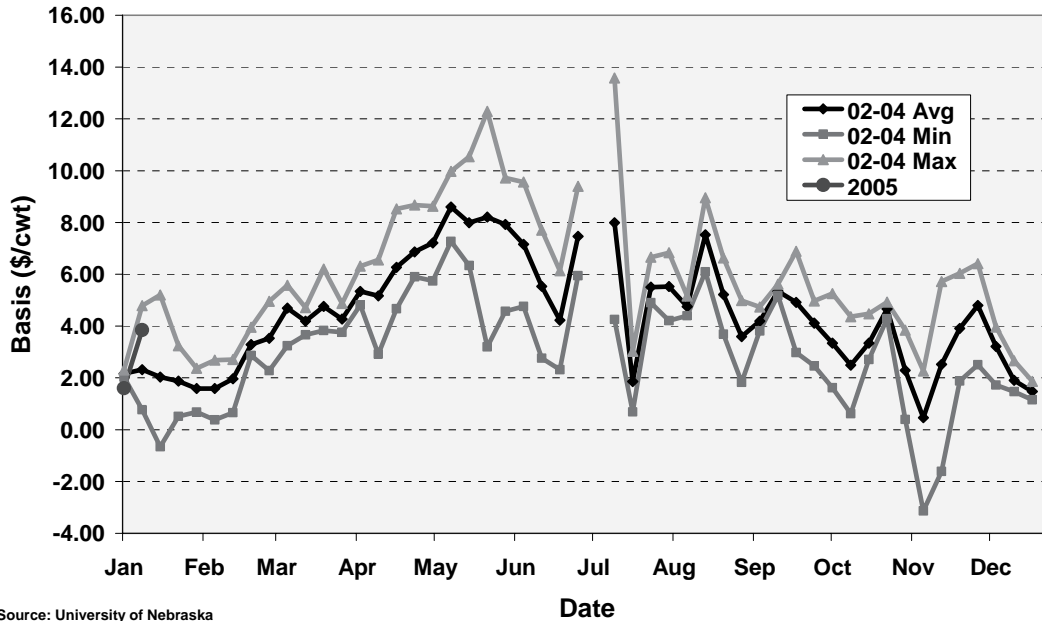


Figure 4.6

4.6 Summary

LRP insurance provides an advantage to Nebraska fed cattle and swine producers by reducing basis variability and risk. Basis is easier to accurately predict when using LRP insurance than when hedging with futures or options contracts. However, Nebraska feeder cattle producers see no significant reduction in basis risk when using LRP insurance relative to futures hedging. Nebraska producers can find the basis data discussed in this chapter online at www.lrp.unl.edu under Resources. These data can be used to make basis forecasts when planning future livestock

sales. Additionally, basis data for other states can be found at the same Web site. Data are available for fed cattle from Iowa/Minnesota, Colorado, Kansas, and Texas/Oklahoma. Data are available for swine from the Eastern Corn Belt, Iowa/Southern Minnesota, and national base and net prices. Data are available for feeder cattle from Colorado, Wyoming, Kansas, Texas, and the Dakotas. When using any of these data, producers should select the price series most representative of their market and adjust the prices and basis data reported by the differences they expect to receive for their quality of livestock and specific sale location.

Check for Understanding: Chapter 4

1. T F When hedging with LRP, producers are guaranteed an ASP equal to the Coverage Price.
2. Changes in the relationship between _____ and a producer's local cash price represent changes in LRP basis.
3. When hedging with LRP, changes in actual LRP basis from expected can result in an ASP that is _____.
 - a) higher than expected
 - b) lower than expected
 - c) changes in LRP basis have no effect on ASP
 - d) both a and b
4. T F On average, fed cattle LRP basis for Nebraska has been positive meaning Nebraska cash prices are typically higher than AEV.
5. T F Because hogs from different parts of the country vary considerably in quality, LRP basis varies substantially for the different regional price series.
6. T F Compared to fed cattle and swine AEV, feeder cattle cash sale prices from Nebraska are weighted heavily into the LRP feeder cattle AEV.
7. T F Feeder cattle LRP users in Nebraska do not benefit from a large reduction in basis risk compared to futures hedgers.
8. Futures and LRP basis are typically _____ in Nebraska for most weights of feeder steers.
 - a) positive
 - b) negative
 - c) about equally variable
 - d) both a and c
9. Forecasting basis correctly is important with hedging because _____.
 - a) basis changes can affect indemnity payments
 - b) basis changes affect actual sale prices
 - c) basis changes are more variable than changes in price
 - d) It is not important to forecast basis correctly
10. T F Positive basis changes are beneficial to producers selling livestock.

Chapter 5

Hedging Outcomes with LRP Insurance

In this chapter, you will learn:

- how to calculate minimum expected selling prices;
- how changes in price and basis affect the outcome of LRP hedges; and
- some final considerations when purchasing LRP.

5.1 Introduction

The first four chapters of this study course provided a thorough explanation of LRP insurance. Chapter 1 explained the basic provisions of LRP and the type of protection provided. The second chapter outlined underwriting rules of the program as well as the limitations, advantages, and drawbacks those rules may impose. Chapter 3 covered the mechanics of the program—how LRP actually works. Included in the chapter were LRP terminology, determination of Actual Ending Value (AEV), and determining cost of LRP price protection. Chapter 4 described LRP basis, which is not the same as futures basis with which many producers are familiar. A comparison between LRP and futures basis was presented, along with LRP basis risk reduction and seasonal basis patterns for fed cattle, swine, and feeder cattle. This final chapter will provide examples of the outcome of hedging a future livestock sale with LRP. The resulting sale price of a hedge will be examined under varying levels of AEV and actual LRP basis. Some final considerations for LRP users also will be discussed. Finally, a summary of this study guide will be provided.

5.2 Hedging Outcomes

When hedging with LRP, recall that the insurance policy creates a price floor by paying an indemnity if AEV is less than the Coverage Price on the end date. As a result, it is possible to calculate a minimum expected selling price (MESP) for livestock covered with LRP (see Section 4.2). The MESP can be determined by subtracting the premium cost from the Coverage Price, and adding expected LRP basis:

MESP equals Coverage Price minus Premium Cost To Producer plus Expected LRP basis. Actual sale price (ASP) can vary from MESP for two reasons. First, if the AEV is higher than the Coverage Price, producers can take advantage of the price rally and receive higher cash prices, though no indemnity is paid (note that the LRP premium would still be paid). This condition is beneficial to producers in that they receive an ASP

higher than their MESP. Second, actual LRP basis can be different than expected. In other words, the relationship between a producer's local cash market selling price and the index price used as AEV can change relative to the producer's expectation when initiating the hedge. This situation can be beneficial or detrimental to producers depending on how their local cash price changes relative to AEV. LRP basis can be forecasted using historical average data discussed in Chapter 4 and available at www.lrp.unl.edu.

An example can illustrate how to establish and evaluate an LRP hedge. Suppose that on February 20, Joe Farmer wants to use LRP to insure hogs he intends to sell the third week of May. On February 20, LRP insurance is available with an ending date of May 21 with Coverage Prices ranging from \$45.71/cwt to \$55.71/cwt with premium costs ranging from \$0.21/cwt for the low coverage level to \$1.75/cwt for the high Coverage Price (before the 13 percent subsidy). Joe feels a Coverage Price of \$55.71/cwt (91.9 percent of the EEV of \$60.61/cwt) is the best level of protection for his operation. The producer premium for this level of coverage was \$1.52/cwt (87 percent of \$1.752/cwt, the total premium). Joe selects the average Western Corn Belt (WCB) price series as most representative of his typical selling price as that is the price on which his marketing contract is based. The average WCB base hog LRP basis for the week ending May 23 is Joe's best estimate of the LRP basis he expects on May 21. Using historical basis data, Joe determines the three-year average WCB LRP basis for the third week of May is -\$2.41/cwt. Joe then calculates his MESP to be \$51.78/cwt (\$55.71/cwt less \$1.52/cwt plus -\$2.41/cwt). This is the minimum price he will receive if his basis forecast is correct, regardless if prices go down.

Joe's LRP insurance policy provides protection in the event prices decrease and are lower than the Coverage Price on May 21. For example, assume that the AEV (CME Lean Hog Index) on May 21 is \$52.00/cwt and the actual LRP basis is -\$2.41/cwt (as forecasted above). Joe's cash market selling price is the AEV plus LRP basis, or \$49.59/cwt (\$52.00/cwt + -\$2.41/cwt). In this case, Joe would receive an LRP indemnity of \$3.71/cwt (Coverage Price of \$55.71/cwt less AEV of \$52.00/cwt) because the AEV was less than his Coverage Price. The cash market price is lower in May, but Joe receives an indemnity payment to make up the difference of the price decline below his insured Coverage Price, as shown in *Table 5.1* on the following page.

Table 5.1 Hedge Outcome With Price Decrease and No Basis Change.

| MESP = \$55.71/cwt - \$1.52/cwt + -\$2.41/cwt = \$51.78/cwt | | | | |
|--|---|---|---|--|
| <i>Date</i> | <i>Cash</i> | <i>Ending Value</i> | <i>LRP Insurance</i> | <i>LRP Basis</i> |
| 2/20 | No action | Expected Ending Value = \$60.61/cwt | Buy LRP With Coverage Price = \$55.71/cwt For \$1.52/cwt | Exp. 5/21 basis to be -\$2.41/cwt |
| 5/21 | Sell Hogs @ \$49.59/cwt | Actual Ending Value = \$52.00/cwt | LRP Indemnity = \$3.71/cwt | Actual 5/21 basis is -\$2.41/cwt |
| | Cash price received = \$49.59/cwt | | Net on LRP = \$2.19/cwt | Diff. b/w Act. & Exp. = \$0.00/cwt |
| ASP = \$49.59/cwt + \$2.19/cwt = \$51.78/cwt | | | | |

Joe's ASP for the hogs is determined by adding the net gain on LRP (any indemnity received less premium cost) plus the cash selling price (realize that if no indemnity is paid, the net on LRP is a loss as Joe must pay the premium). His ASP would be \$51.78/cwt (\$49.59/cwt plus \$2.19/cwt). In this case, Joe's ASP equaled MESP because prices decreased *and* Joe's LRP basis forecast equaled the actual basis on May 21. Without LRP insurance, Joe's ASP would have been his cash price of \$49.59/cwt. An even larger drop in price would have resulted in ASP lower than MESP if he did not have the LRP insurance policy.

The LRP insurance policy would have also allowed Joe to benefit from higher prices on May 21. Suppose, for example, that the AEV on May 21 was \$60.00/cwt and Joe's actual LRP basis was -\$2.41/cwt (as forecasted above). His local cash price would be \$57.59/cwt in this case (\$60.00/cwt + -\$2.41/cwt). No LRP indemnity would be paid because the AEV exceeded the Coverage Price of \$55.71/cwt. The ASP for the hogs would be determined as before and would be \$56.07/cwt (\$57.59/cwt + -\$1.52/cwt). This outcome is illustrated in *Table 5.2* below.

Table 5.2 Hedge Outcome With Price Increase and No Basis Change.

| MESP = \$55.71/cwt - \$1.52/cwt + -\$2.41/cwt = \$51.78/cwt | | | | |
|--|---|---|---|--|
| <i>Date</i> | <i>Cash</i> | <i>Ending Value</i> | <i>LRP Insurance</i> | <i>LRP Basis</i> |
| 2/20 | No action | Expected Ending Value = \$60.61/cwt | Buy LRP With Coverage Price = \$55.71/cwt For \$1.52/cwt | Exp. 5/21 basis to be -\$2.41/cwt |
| 5/21 | Sell Hogs @ \$57.59/cwt | Actual Ending Value = \$60.00/cwt | No LRP Indemnity = (AEV > Coverage Price) | Actual 5/21 basis is -\$2.41/cwt |
| | Cash price received = \$57.59/cwt | | Net on LRP = -\$1.52/cwt | Diff. b/w Act. & Exp. = \$0.00/cwt |
| ASP = \$57.59/cwt + -\$1.52/cwt = \$56.07/cwt | | | | |

In this case, when AEV on the end date was above the insured Coverage Price, Joe’s ASP exceeded MESP and he benefited from the price increase. While Joe would have received a higher price had he not purchased the LRP insurance, he did have protection in case of a decline in prices (he essentially gave up \$1.52/cwt of the price increase as payment for protection from price decreases).

LRP basis also can affect whether Joe’s ASP meets

his MESP (in the event of a price decrease). Suppose, as before, the AEV on May 21 was \$52.00/cwt but that Joe’s actual LRP basis was -\$3.41/cwt (\$1.00/cwt weaker than forecasted). This indicates that Joe’s local cash price was \$48.59/cwt (\$52.00/cwt + -\$3.41/cwt). He would receive an LRP indemnity of \$3.71/cwt as before because the AEV (\$52.00/cwt) was less than the Coverage Price (\$55.71/cwt). *Table 5.3* below shows this result.

Table 5.3 Hedge Outcome With Price Decrease and Weaker Basis Than Expected.

| MESP = \$55.71/cwt - \$1.52/cwt + -\$2.41/cwt = \$51.78/cwt | | | | |
|--|---|---|---|---|
| <i>Date</i> | <i>Cash</i> | <i>Ending Value</i> | <i>LRP Insurance</i> | <i>LRP Basis</i> |
| 2/20 | No action | Expected Ending Value = \$60.61/cwt | Buy LRP With Coverage Price = \$55.71/cwt For \$1.52/cwt | Exp. 5/21 basis to be -\$2.41/cwt |
| 5/21 | Sell Hogs @ \$48.59/cwt | Actual Ending Value = \$52.00/cwt | LRP Indemnity = \$3.71/cwt | Actual 5/21 basis is -\$3.41/cwt |
| | Cash price received = \$48.59/cwt | | Net on LRP = \$2.19/cwt | Diff. b/w Act. & Exp. = -\$1.00/cwt |
| ASP = \$48.59/cwt + \$2.19/cwt = \$50.78/cwt | | | | |

Joe’s ASP would be \$50.78/cwt (\$48.59/cwt plus \$2.19/cwt). In this case, his ASP was \$1.00/cwt lower than MESP. This difference was due to the weaker than expected LRP basis lowering the cash price by \$1.00/cwt compared to the first example. In both this case and the first case, the AEV decline was the same, so the difference between what Joe expected to receive versus what he actually received was not affected by the price decrease. Instead the unanticipated change in the relationship between the CME Lean Hog Index price and his local cash price (the weakening LRP

basis) caused the different ASP.
A stronger than forecasted LRP basis (with a decline in price level) would result in an ASP higher than the MESP. For example, assume again that the AEV on May 21 was \$52.00/cwt but that actual LRP basis was -\$0.41/cwt (\$2.00/cwt stronger than Joe forecasted). Joe’s cash hog price would then be \$51.59/cwt (\$52.00/cwt + -\$0.41/cwt). An LRP indemnity of \$3.71/cwt would be paid as before because the AEV was less than the Coverage Price. *Table 5.4* on the following page illustrates this outcome.

Table 5.4 Hedge Outcome With Price Decrease and Stronger Basis Than Expected.

| MESP = \$55.71/cwt - \$1.52/cwt + -\$2.41/cwt = \$51.78/cwt | | | | |
|--|---|---|---|--|
| <i>Date</i> | <i>Cash</i> | <i>Ending Value</i> | <i>LRP Insurance</i> | <i>LRP Basis</i> |
| 2/20 | No action | Expected Ending Value = \$60.61/cwt | Buy LRP With Coverage Price = \$55.71/cwt For \$1.52/cwt | Exp. 5/21 basis to be -\$2.41/cwt |
| 5/21 | Sell Hogs @ \$51.59/cwt | Actual Ending Value = \$52.00/cwt | LRP Indemnity = \$3.71/cwt | Actual 5/21 basis is -\$0.41/cwt |
| | Cash price received = \$51.59/cwt | | Net on LRP = \$2.19/cwt | Diff. b/w Act. & Exp. = \$2.00/cwt |
| ASP = \$51.59/cwt + \$2.19/cwt = \$53.78/cwt | | | | |

Joe's ASP would be \$53.78/cwt (\$51.59/cwt plus \$2.19/cwt) which is \$2.00/cwt higher than MESP. This difference was due to actual LRP basis being \$2.00/cwt higher than expected causing the cash market price to be \$2.00/cwt higher. In both of the last two cases, the price decline was the same amount, so the difference between what Joe expected to receive versus what he actually received was not affected by the price level decrease (as measured by AEV). Rather, the actual LRP basis being weaker (stronger) than Joe's expectation resulted in an ASP lower (higher) than MESP.

Note that if AEV is higher than the Coverage Price (no indemnity paid) and actual LRP basis is different than expected, the result of the hedge can vary. If basis is stronger than expected, ASP will be higher than the ASP if actual basis equaled the forecasted basis. If LRP basis is weaker than expected and AEV is above the Coverage Price, ASP will be lower. It would even be possible in this case for the ASP to be less than MESP if the basis weakens substantially compared to its forecasted level.

5.3 Final Considerations

One point to consider when evaluating LRP as a hedging instrument is the program's availability. Section 1.6 discussed the hours of availability for LRP insurance. However, at times, USDA may make LRP unavailable during normal hours of availability because of certain conditions. Underwriting rules for 2005 suspend sales of all Specific Coverage Endorsements of a given class of livestock if at least four of the underlying CME futures contracts for that class of livestock settle at their daily limit for two consecutive

days. Sales of that livestock class will resume when there have been two consecutive days without four underlying futures contracts settling at the daily limit.

Also, sales of LRP may be suspended if underwriting capacity limits have been exceeded. There are maximums both for the total amount of coverage sold for the crop year and also for a given day. If either maximum amount is exceeded, sales of LRP will be halted for the remainder of that period of time or until capacity becomes available by existing contracts ending. Also, each company certified to sell LRP insurance has a limited amount of underwriting capacity. If LRP becomes a popular product, underwriting capacity may be an important factor to consider when choosing an insurance company for LRP. A producer would not want to select a company only to discover that company has little or no remaining underwriting capacity. However, as a new pilot program, underwriting capacity is not likely to be an issue. Further, for the 2005 crop year, almost \$19 million in underwriting capacity remained with less than three months left in the crop year.

Finally, LRP sales can be suspended if a news report, announcement, or other event occurs during or after trading hours that is believed by the Secretary of Agriculture or RMA staff to significantly change market conditions from those on which the LRP insurance for that day was rated. For example, when BSE was announced in the U.S. on December 23, 2003, sales of LRP insurance for fed and feeder cattle were suspended shortly thereafter. This policy prevents adverse selection by preventing producers from purchasing LRP with prior knowledge of what markets will likely do the following day.

5.4 Conclusion

LRP insurance is a program that may be useful to livestock producers wishing to establish a minimum selling price for their livestock. For those producers with smaller herds who may not be able to use futures or options contracts, the flexibility of LRP may prove beneficial. As an insurance product, LRP may be attractive to producers who may not understand or may not be comfortable trading in the futures or options markets. Despite the similarity in how LRP and options contracts work, LRP is a fairly straightforward program that may reduce some confusion people experience with options hedges. The program has other advantages over futures or options hedging. Once LRP is priced for a given day, the prices are guaranteed and will not change for that day. Also, LRP is available after normal market trading hours allowing producers to purchase price coverage at times not previously available. Additionally, LRP insurance provides a significant reduction in basis risk for fed cattle and

swine producers. When hedging, basis risk is the only component of producers' ASP that is not protected. By reducing basis risk, LRP makes it easier for producers to accurately forecast MESP, and consequently, producers may have a better approximation of future cash flows. However, not all basis risk is eliminated, and producers are still exposed to some variation in actual selling prices (particularly with feeder cattle). Additionally, once a hedge is established with LRP, it cannot be lifted or sold back to recapture some of the premium cost. A 30-day marketing window is allowed prior to the end date of coverage, but selling livestock before the end date exposes the policy holder to price risk. With restrictions on taking offsetting futures or options positions, LRP may limit some producers' common marketing strategies. All these factors are important to think about when evaluating LRP as a hedging tool.

Check for Understanding: Chapter 5

1. The equation for calculating minimum expected selling price (MESP) is:
MESP = _____ - _____ + _____
2. T F Because LRP creates a price ceiling, producers using LRP cannot benefit from price rallies.
3. If a producer wants to purchase LRP coverage with a total premium of \$2.00/cwt, how much is the producer's portion of the premium? _____
4. If a producer purchases LRP insurance with a Coverage Price of \$55.50/cwt and a producer premium of \$1.50/cwt and expects LRP basis to be \$2.00/cwt at the end of coverage, what is the producer's MESP? _____
5. The equation for calculating ASP is: $ASP = \text{_____} + \text{_____}$
6. T F If no indemnity is paid on LRP coverage, the net on LRP is equal to the cost of the premium.
7. T F The MESP for an LRP hedge is the lowest possible ASP a producer can receive.
8. If a producer receives a higher ASP than MESP, what factor caused the higher ASP?
 - a) AEV was higher than Coverage Price at the end date
 - b) LRP basis strengthened relative to expected
 - c) LRP basis weakened relative to expected
 - d) a or b could cause a higher ASP than MESP
 - e) a or c could cause a higher ASP than MESP
9. What conditions can cause suspension of LRP sales?
 - a) At least four of the underlying CME futures contracts settle at daily limits for two consecutive days
 - b) An event occurs that USDA deems significantly changes market conditions
 - c) Daily underwriting capacity is exceeded
 - d) all of the above
10. T F LRP insurance has advantages and limitations relative to other hedging strategies that must be considered when deciding if it is a useful program for a given operation.

Appendix 1¹

LRP Enrollment Application

| 1. APPLICANT | | | 2. INSURANCE AGENCY | | |
|--|---|-----------|----------------------------|---------------|-----------|
| Applicant Name: | SSN: | EIN: | Insurance Agency Name: | Agency Code: | |
| Spouse's Name: | Spouse's SSN: | | Insurance Agent's Name: | Agent's Code: | |
| Applicant is at least 18 Years Yes <input type="checkbox"/> No <input type="checkbox"/> | E-mail Address: | | E-mail address: | | |
| Street or Mailing Address: | | | Street or Mailing Address: | | |
| City: | State: | Zip Code: | City: | State: | Zip Code: |
| County: | Farm or Business Name: | Phone: | Phone: | Fax: | |
| Crop Year: | Class(es) of livestock or livestock product to be insured: Swine <input type="checkbox"/> Feeder Cattle <input type="checkbox"/> Fed Cattle <input type="checkbox"/> | | Commodity Code | | |

¹ This is the USDA form for the 2005 crop year. Revisions may be made in subsequent crop years. Additionally, variations on the form may be used by different insurance companies.

Appendix 2¹

Substantial Beneficial Interest Form

| | | | | | |
|---|--|--------------------|--|---------------|--|
| NAME OF APPLICANT/INSURED: | | POLICY NUMBER: | | | |
| <input type="checkbox"/> SSN <input type="checkbox"/> EIN <input type="checkbox"/> OTHER (Check One) | | ADDRESS OF AGENT: | | | |
| SOCIAL SECURITY OR EMPLOYER IDENTIFICATION NUMBER: | | | | | |
| AGENT NAME: | | AGENT CODE NUMBER: | | COMPANY NAME: | |

List persons and/or entities with 10 percent or more interest in the insurance entity identified above as the Applicant/Insured.

| NAME (Print or Type) | COMPLETE ADDRESS (St., R.R., P.O. Box, Zip, etc.) | SSN/EIN (Check One & Enter No.) | TELEPHONE NUMBER | ENTITY TYPE | SHARE |
|-------------------------|--|--|---------------------|----------------|-------|
| | | <input type="checkbox"/> SSN <input type="checkbox"/> EIN <input type="checkbox"/> OTHER | () | | |
| | | <input type="checkbox"/> SSN <input type="checkbox"/> EIN <input type="checkbox"/> OTHER | () | | |
| | | <input type="checkbox"/> SSN <input type="checkbox"/> EIN <input type="checkbox"/> OTHER | () | | |
| | | <input type="checkbox"/> SSN <input type="checkbox"/> EIN <input type="checkbox"/> OTHER | () | | |
| | | <input type="checkbox"/> SSN <input type="checkbox"/> EIN <input type="checkbox"/> OTHER | () | | |
| | | <input type="checkbox"/> SSN <input type="checkbox"/> EIN <input type="checkbox"/> OTHER | () | | |
| | | <input type="checkbox"/> SSN <input type="checkbox"/> EIN <input type="checkbox"/> OTHER | () | | |
| | | <input type="checkbox"/> SSN <input type="checkbox"/> EIN <input type="checkbox"/> OTHER | () | | |

| | |
|---------------------------------|-------|
| SIGNATURE OF APPLICANT/INSURED: | DATE: |
|---------------------------------|-------|

¹ This is the USDA form for the 2005 crop year. Revisions may be made in subsequent crop years. Additionally, variations on the form may be used by different insurance companies.

Appendix 3¹

Transfer of Right to Indemnity Form

| | | | | |
|---|----------------------------|-------------------|-----------------------------------|---------------------|
| Policy Number: | Endorsement Number: | Crop Year: | Authorized Representative: | Agency Code: |
| 1. INSURED: | | | 2. TRANSFEREE: | |
| Insured's Name: | | | Transferee's Name: | |
| Insured's SSN: | Insured's EIN: | Transferee's SSN: | Transferee's EIN: | |
| Street or Mailing Address: | | | Street or Mailing Address: | |
| City: | State | Zip Code: | City: | State: Zip Code: |
| Phone: | Fax: | Phone: | Fax: | |
| 3. SPECIFIC COVERAGE ENDORSEMENT INFORMATION FOR INSURED LIVESTOCK | | | | |
| Effective Date | End Date | Insured Value | % of Insured Share Transferred | |

Appendix 4¹

Assignment of Indemnity Form

| | | | | |
|---|----------------------------|-------------------|-----------------------------------|---------------------|
| Policy Number: | Endorsement Number: | Crop Year: | Authorized Representative: | Agency Code: |
| 1. INSURED: | | | 2. ASSIGNEE: | |
| Insured's Name: | | | Assignee's Name: | |
| Insured's SSN: | Insured's EIN: | Assignee's SSN: | Assignee's EIN: | |
| Street or Mailing Address: | | | Street or Mailing Address: | |
| City: | State: | Zip Code: | City: | State: Zip Code: |
| Phone: | Fax: | Phone: | Fax: | |
| 3. SPECIFIC COVERAGE ENDORSEMENT INFORMATION FOR INSURED LIVESTOCK | | | | |
| Effective Date | End Date | Insured Value | Total Premium | |

¹ This is the USDA form for the 2005 crop year. Revisions may be made in subsequent crop years. Additionally, variations on the form may be used by different insurance companies.

Appendix 5¹

Specific Coverage Endorsement Form

| | | | | | | | |
|--|----------------|-------------------------------|-----------|---|-----------------|-------------------|-----------------|
| Commodity Code: | | Policy Number: | | Endorsement Number: (Company Use only) | | | |
| 1. INSURED | | | | 2. INSURANCE AGENCY | | | |
| Insured Name: | | Spouse's Name: | | Insurance Agency Name: | | Agency Code: | |
| SSN: | EIN: | Spouse's SSN: | | Insurance Agent's Name: | | Agent Code: | |
| Farm or Business Name: | | E-mail address: | | E-mail address: | | | |
| Street or Mailing Address: | | | | Street or Mailing Address: | | | |
| City: | | State: | Zip Code: | City: | | State: | Zip Code: |
| County: | | Phone: | | Phone: | | Fax: | |
| Legal Description of location of livestock or livestock product: | | State: | Zip Code: | | | | |
| 3. SCHEDULE OF INSURED LIVESTOCK OR LIVESTOCK PRODUCT | | | | | | | |
| Crop Year | Effective Date | End Date | | No. of Head Covered | | Insured Share % | |
| | | | | | | | |
| 4. INSURED VALUE | | | | | | | |
| Number of Head | X | Target Weight (Cwt. Per Head) | X | Coverage Price | X | Insured Share (%) | = Insured Value |
| | X | | X | | X | | = |
| 5. PREMIUM COMPUTATION | | | | | | | |
| Insured Value | X | Rate | = | Total Premium | | | |
| | X | | = | | | | |
| | | | | | Approval Number | | |
| | | | | | | | |

¹ This is the USDA form for the 2005 crop year. Revisions may be made in subsequent crop years. Additionally, variations on the form may be used by different insurance companies.

Appendix 6¹

Claim Form

| | | | |
|-----------------|----------------|---------------------|--------------------------------|
| Commodity Code: | Policy Number: | Endorsement Number: | Claim Number: (Company Use) |
|-----------------|----------------|---------------------|--------------------------------|

According to our records, you may be entitled to an indemnity under the above policy endorsement based on the information presented below. Please contact your agent if the information shown in sections 1, 2, or 3 is not correct. The calculation of the indemnity is shown in section 6 below. In order to receive an indemnity, your signature is required to certify that the terms and conditions of the policy have been met as stated in section 7 below.

Assignment of Indemnity? Yes ☐ No ☐ Transfer of Right to Indemnity? Yes ☐ No ☐

| | | | | | | | |
|-----------------------------------|---------|---------|-----------|--|--------|-----------------|--|
| 1. INSURED | | | | 2. INSURANCE AGENCY | | | |
| Insured Name: | | SSN: | EIN: | Insurance Agency Name: | | Agency Code: | |
| Name of Farm/Ranch or Business: | | | | Insurance Agent's Name: | | Agent's Code: | |
| Street or Mailing Address: | | | | Street or Mailing Address: | | | |
| City: | County: | State: | Zip Code: | City: | State: | Zip Code: | |
| Phone: | Fax: | E-mail: | | Phone: | Fax: | E-mail address: | |
| 3. ASSIGNMENT OF INDEMNITY | | | | | | | |
| Assignee's Name: | | | | Assignee's SSN / EIN (circle one and enter): | | | |
| Street or Mailing Address: | | | | Phone: | | Fax: | |
| City: | | State: | | Zip: | | | |

| | |
|----------------|---------------------|
| Coverage Price | Actual Ending Value |
| | |

If actual ending value is less than the coverage price an indemnity is due.

4. INDEMNITY CALCULATION

If the actual ending value is less than the coverage price, an indemnity is due. The indemnity is equal to the number of head multiplied by the target weight (in cwt as defined in the Specific Coverage Endorsement) multiplied by the difference between the coverage price and the actual ending value (in \$ per cwt.), and then multiplied by the ownership share (in percent).

| Number of Head | Target Weight At End Date (Cwt. Per Head) | Coverage Price Minus Actual Ending Value | Insured Share % | Indemnity |
|----------------|---|--|-----------------|-----------|
| | | | | |

¹ This is the USDA form for the 2005 crop year. Revisions may be made in subsequent crop years. Additionally, variations on the form may be used by different insurance companies.

Answers to “Check for Understanding”

Chapter 1

1. False.
2. True.
3. True.
4. False. LRP is available from 5:00 p.m. to 9 a.m. the following morning.
5. False. There is no minimum number of head that must be covered on an SCE.
6. True.
7. True.
8. False. Livestock can be sold up to 30 days before the expiration without voiding coverage.
9. False. LRP is intended to prevent losses caused by large price declines.
10. True. For a given level of protection, premiums will be lower when prices are high.

Chapter 2

1. C.
2. True.
3. False. Dead animals are eligible for the LRP indemnity if the death is reported to the insurance agent, but that indemnity only covers the difference between Coverage Price insured and the actual ending value.
4. False. Third party statements from veterinarians, feed salesmen, etc., can be used to verify ownership.
5. True.
6. B.
7. True.
8. D.
9. True.
10. False. Once purchased, LRP cannot be lifted to recover any premium.

Chapter 3

1. Expected Ending Value (EEV).
2. Indemnity.
3. End Date.
4. Coverage Price.
5. Actual Ending Value (AEV).
6. True.
7. TX/OK, KS, NE, CO, IA/MN.
8. False. All feeder cattle are indemnified using the CME feeder cattle cash index (some use a price adjustment factor to scale AEV up or down).
9. A.
10. True.

Chapter 4

1. False. Producers are still exposed to LRP basis risk which can affect ASP.
2. AEV.
3. D. Basis can increase or decrease relative to expectations causing ASP to be higher or lower.
4. True.
5. False. Hog prices are relatively uniform across different geographic areas resulting in similar basis levels.
6. False. Feeder cattle AEV includes prices from all over the country.
7. True.
8. D.
9. B. Basis changes have no affect on indemnity payments. Basis change is generally less variable than price level change.
10. True.

Chapter 5

1. $MESP = \text{Coverage Price} - \text{Producer Premium Cost} + \text{Expected LRP Basis}$
2. False. LRP creates a price floor, allowing producers to benefit from price rallies.
3. \$1.74/cwt. Producer premium = 87% of Total premium (\$2.00/cwt x 0.87)
4. \$56.00/cwt. $MESP = \$55.50/\text{cwt} - \$1.50/\text{cwt} + \$2.00/\text{cwt}$
5. $ASP = \text{Cash price} + \text{Net on LRP}$.
6. True.
7. False. ASP can be lower than MESP if basis is weaker than expected.
8. D. ASP can be higher than MESP if prices increase or if basis is stronger than expected.
9. D.
10. True.



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